MARCH

(MARCH-APRIL)

1946

CHEMICAL PREVIEW

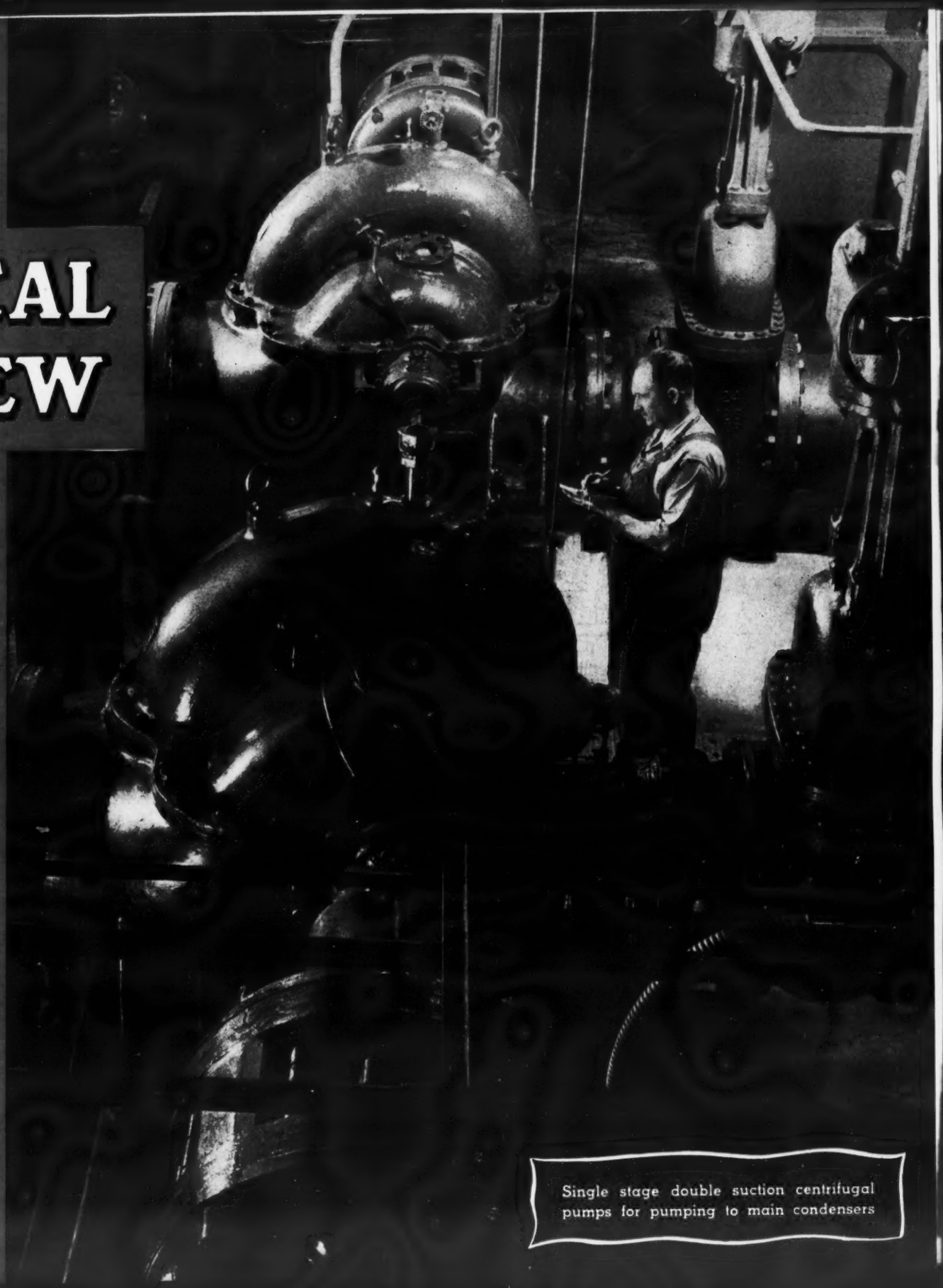
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★

Latest developments in chemical process manufacturing... for engineers, chemists and executives.

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Single stage double suction centrifugal pumps for pumping to main condensers

A Working PRINCIPLE



FLOW DIAGRAM

COMMERCIAL INSTALLATION

FOR CAUSTIC OR ACID TREATMENT OF OILS PRIOR TO CENTRIFUGING

Continuous AUTOMATIC PROPORTIONING WILL WORK FOR *You*



The *principle* of continuous, automatic proportioning is *working* in this %Proportioneers% flow responsive system for treatment of oils. Automatic, accurate and flexible in application, this Treet-O-Control system is *working* with spectacular success.

Look to %Proportioneers, Inc.% for continuous, automatic treating and blending equipment and for engineering service to develop production line-processing.

Ask for Bulletin 1700

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WRITE TO %PROPORTIONEERS, INC.% 41 CODDING ST., PROVIDENCE 1, RHODE ISLAND

"That's Interesting"

Special Cellophane for Ascorbic Acid Tablets Used in Overseas Relief

Small ascorbic acid tablets, each containing as much vitamin C as half a glass of orange juice, are being shipped overseas on lend-lease for distribution through the Red Cross in war-ravaged areas. They are packaged in units of seven, enough for a week's supply, and instructions on the box are printed in English, French, German, Italian, Polish and Serbian. For protection against attack by air, water and moisture vapor, each tablet in the strip of seven is individually wrapped in cellophane. In the packaging operation two rolls of it are run in tandem, heat and crimp sealed along four edges and also between the tablets. This gives each tablet full protection and keeps it fresh until used. (Sylvania Industrial Corp., Channin Bldg., New York.)

"Family" Boat is Low Pressure Laminated — Weighs 150 Lbs.

A small "family" boat produced from sisal, canvas and "Bakelite" resins and weighing under 150 pounds complete with woodwork, seats and trim is now being manufactured. It is ten feet in length and has a four foot beam. The shell is watertight and extremely buoyant. No metal fastenings are used in fabrication. Even the transom, or after end of the craft is joined to the hull at the time of lamination. The great resiliency and extremely low water absorption are other features. The boat sustains 1200 pounds with eight inches of freeboard to spare. (From Bakelite Review.)

Izaak Walton Should Have Seen This

A new type fishing ferrule undergoes an unusual test before being sold. Pulled by an electric motor a fishline feeds through it at 200 feet per minute under a tension of twenty pounds, simulating a good sized fish making a fast run. Tests of several hours groove all metals so far examined by this method except heat treated "K" Monel and "Z" Nickel which show no signs of abrasion. (International Nickel Co., Inc.—Mechanical Topics.)

Salt Stimulates Growth of Cannery Beets

During the past season tests on twelve different farms in the state of New York covering variety of soils and fertility levels indicated the advantages in the use of salt in increasing the yield of beets. In every case 500 pounds of salt per acre was used. (New York State College of Agriculture, Cornell U. — Ithaca, N. Y.)

This Means More Work For Those Auctioneers!

Cigarette manufacturers in this country import 50-75 million pounds of Turkish tobacco a year. Present experiments promise the possibility of Southern farmers soon being able to grow large volumes of Turkish type tobacco for our requirements. (The Flowline.)

(Continued on next page)

For more information on product at left, specify CP A3858 . . . see information request blank between pages 2-3.

Check Below For Product Information

MARCH-APRIL 1958

EVERY PRODUCT DESCRIBED IN THIS ISSUE IS LISTED ON THIS SHEET. Check items that interest you, fill in your name and address on reverse side and mail to publisher. Information comes to you direct, without obligation.

√	Key	Product
☐	A3858	Proportioning Pumps
☐	A3859	Processing Equipment
☐	A3860	Stuffing Boxes
☐	A3861	Sediment Separators
☐	A3862	Conveyors
☐	A3863	Temperature Recorders
☐	A3864	Pumps
☐	A3865	Tower Packing
☐	A3866	End Point Titrator
☐	A3867	Heat Exchangers
☐	A3868	Magnetic Stirrers
☐	A3869	Tank Equipment & Gas Control Catalog
☐	A3870	Aluminum Containers
☐	A3871	Condensers & Exchangers
☐	A3872	Meter Valves
☐	A3873	Hose Couplings & Fittings
☐	A3874	Glass Pipe
☐	A3875	Plug Valves
☐	A3876	Gas Line Dryers
☐	A3877	Electronic Counters
☐	A3878	Drying Systems
☐	A3879	Processing Equipment
☐	A3880	Oxyacetylene Cutting
☐	A3881	Lubricating Systems
☐	A3882	Motors
☐	A3883	Swivel Joints
☐	A3884	Laminating Plastics
☐	A3885	Nitrogen
☐	A3886	Geranium Body
☐	A3887	Roller Finishing
☐	A3888	Ortho-Nitrobiphenyl Plasticizer
☐	A3889a	Dry Ice
☐	A3889b	Carbonic Gas
☐	A3890	Lard Rendering Process
☐	A3891	Waxes
☐	A3892	Adhesives
☐	A3893	Dust Collectors
☐	A3894	Vinyl Stabilizer
☐	A3895	Sodium Tetraphosphate
☐	A3896	Dye Carrying Penetrant
☐	A3897	Urea-formaldehyde Resin
☐	A3898	DDT Emulsifier
☐	A3899	Plasticizers
☐	A3900	Copper Fluoborate
☐	A3901	Benzyltrimethylammonium Chloride
☐	A3902	Color Rustproofing
☐	A3903	DDT Products
☐	A3904	Depressant For Wax Base
☐	A3905	Sodium Xylenesulfonate
☐	A3906	Handling Equipment
☐	A3907	Arochem 333
☐	A3908	Synthetic Tannin
☐	A3909	Algin Products
☐	A3910	DDT
☐	A3911	Petroleum Naphthas
☐	A3912	Soya Protein Powder
☐	A3913	Plasticizers
☐	A3914	Calcium Hypochlorite
☐	A3915	Neoprene Putty
☐	A3916	White Plate
☐	A3917	Silica Gel
☐	A3918	Silver-Brazing Flux
☐	A3919	Mixing Equipment
☐	A3920	Arc-Welding Compound
☐	A3921	Vinyl White Coatings
☐	A3922	Proportioning Pumps
☐	A3923	Soapless Detergents
☐	A3924	Transparent Packaging
☐	A3925	Resinous Chlorinated Paraffin
☐	A3926	Spray Nozzles
☐	A3927	Ball Bearing Grease
☐	A3928	Synthetic Alcohols
☐	A3929	Protective Coatings
☐	A3930	Hand Cleaner
☐	A3931	"Styralcy"
☐	A3932	Furfuryl Alcohol
☐	A3933	Hydrogen
☐	A3934	Silica Products
☐	A3935	Ascorbic Acid Bulletin
☐	A3936	Catalytic & Polymerization Agents
☐	A3937	Corrosion Resistant Coatings
☐	A3938	Stainless Steel Handbook
☐	A3939	Industrial Linings Service
☐	A3940	Vinyl Acetate
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☐	A3945	Nickel Alloys
☐	A3946	Insulating Cements
☐	A3947	SO_2 System
☐	A3948	Manometers
☐	A3949	"Quantometer" Analyzer
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☐	A3951	Laboratory Glassware
☐	A3952	Cathode Ray Tubes
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☐	A3956	Contact Pyrometers
☐	A3957	Tank Gauges
☐	A3958	Magnetic Flux Meters
☐	A3959	"Filmeter"
☐	A3960	Control Valves
☐	A3961	pH Recording Controllers
☐	A3962	Electric Ovens
☐	A3963	Temperature Controls
☐	A3964	Laboratory Furniture
☐	A3965	Water Valves
☐	A3966	Bantam De-Ionizers
☐	A3967	Pneumatic Transmitters
☐	A3968	Liquid Level Controls
☐	A3969	Laboratory Equipment
☐	A3970	Laboratory Furnaces
☐	A3971	Flow Meters
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☐	A3973	CO_2 Stack Analyzer
☐	A3974	Infrared Spectrophotometer
☐	A3975	pH Meters
☐	A3976	Thermometers
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☐	A3980	Diaphragm Pumps
☐	A3981	Electronic Timers
☐	A3982	Constant Voltage Transformers
☐	A3983	Industrial Trucks
☐	A3984	Wire Fabricated Parts
☐	A3985	Filters & Filter Plates
☐	A3986	Spray Nozzles
☐	A3987	Chains
☐	A3988	Electric Furnaces
☐	A3989	Electric Markers
☐	A3990	Combustibles Recorders Controller
☐	A3991	Thermometers
☐	A3992	Circuit Breakers
☐	A3993	De-Ionizing Units
☐	A3994	Processing Equipment
☐	A3995	Box Cover Fasteners
☐	A3996	Laboratory Ovens
☐	A3997	Control Valves
☐	A3998	Flow Meters
☐	A3999	Interval Timers
☐	A4000	Recirculating Unit
☐	A4001	Box-type Ovens
☐	A4002	Filter Press Closing Device
☐	A4003	Conductivity Cells
☐	A4004	Volt-Ohmmeters
☐	A4005	Slide Rule
☐	A4006	Moisture Testers
☐	A4007	Circulation Heaters
☐	A4008	Aging Bath
☐	A4009	Ultra High-Speed Relays
☐	A4010	Slurry Pumps
☐	A4011	Valves
☐	A4012	Cut-off Valve
☐	A4013	Liquid Level Controls
☐	A4014	Explosion-proof Controls
☐	A4015	Controls
☐	A4016	Megohm Meters
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☐	A4025	Quick Opening Doors
☐	A4026	Pressure Regulators
☐	A4027	Gyrating Screens
☐	A4028	Thermometers
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☐	A4048	Overhead Handling
☐	A4049	Safety Cans
☐	A4050	Synthetic Rubber Gloves
☐	A4051	Screw Conveyors
☐	A4052	Electric Vibrators
☐	A4053	Resistors
☐	A4054	Fabric-lined Gloves
☐	A4055	Electric Trucks
☐	A4056	Boiler & Tank Accessories
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☐	A4084	Resorcinol Formaldehyde Resins
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☐	A4087	Pipe Conduit
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☐	A4089	High Lift Fork Trucks
☐	A4090	Refrigeration Catalog
☐	A4091	Tenite Sheeting
☐	A4092	Pulverizers

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Additional items on reverse side

MORE PRODUCT INFORMATION — Continued from reverse side of this sheet. Check items that interest you. Fill in your name and address below and mail to publisher.

See Reverse Side of this Sheet

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☐	A4094	Plastic Cork Coatings
☐	A4095	Mixers
☐	A4096	Pumps
☐	A4097	Steel Valves
☐	A4098	Milling Equipment
☐	A4099	Heating Costs Chart
☐	A4100	Storage of Paper Bags
☐	A4101	Sheaves
☐	A4102	Air Separator & Trap
☐	A4103	Plastics Molding Service
☐	A4104	Presentation of Pump Facts
☐	A4105	Cotton Filter Media
☐	A4106	Couplings
☐	A4107	Crane Power Unit
☐	A4108	Conveyors
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☐	A4110	Metal Cleaning Machinery
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☐	A4112	Lubricating Systems
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☐	A4117	Stainless Steel
☐	A4118	Spray Dryers
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☐	A4121	Portable Vacuum Cleaners
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☐	A4123a	Belt Idlers
☐	A4123b	Pulverizers
☐	A4123c	Take-Ups
☐	A4124	Dials & Scales
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☐	A4126	"How to Cut Cast Iron"
☐	A4127	Insulations
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☐	A4136	Pneumatic Conveyors
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☐	A4232	Instruments
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☐	A4236	Vacuum Pumps
☐	A4237	Corrosion-proof Permanite
☐	A4238	Stainless Pipe Fittings
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☐	A4241	High Frequency Units
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☐	A4243	Hand Trucks
☐	A4244	Swiveloader
☐	A4245	Filters
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☐	A4249	Metal Beer Barrels
☐	A4250	Single Nickel Salts
☐	A4251	Mill Feed Control
☐	A4252	Glass Tanks
☐	A4253	Flexible Couplings
☐	A4254	Filters
☐	A4255	Pallets
☐	A4256	Portable Pyrometers
☐	A4257	Steel Barrels
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☐	A4275	Labels
☐	A4276	Metal Screens
☐	A4277	Portable Belt Conveyor
☐	A4278	Flange-Jacks
☐	A4279	Speed Reducers
☐	A4280	Acid Handling Pumps
☐	A4281	Stainless Tank Heads
☐	A4282	Coolant Systems
☐	A4283	Lighting Fixtures
☐	A4284	Mixers & Agitators
☐	A4285	Acid Resistant Pipe
☐	A4286a	Vacuum Pump
☐	A4286b	Air Compressors
☐	A4286c	Liquid Handling Pumps
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☐	A4287b	Diaphragm Pressure Switch
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☐	A4296	Centralized Oiling System
☐	A4297	Fire Extinguishers
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☐	A4299	Relief Valves
☐	A4300	Agitating Equipment
☐	A4301	Dryers
☐	A4302	Magnetic Brakes
☐	A4303	Floor Patch
☐	A4304	Filter Presses
☐	A4305	Sheet Metal Fabrication
☐	A4306	Air Cleaner
☐	4th Cover	Processing Equipment

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Fill in and mail this form to CHEMICAL PREVIEW, 737 N. Michigan Ave., Chicago 11, Illinois

"That's Interesting"

Survey Shows Wide Range of Service of Dry Ice and CO_2 Throughout the Processing Industries

Dry ice has many and varied uses in food processing and in industrial fields. A recent survey conducted by a major producer of this product reveals some valuable information on its uses and indicates that many wartime uses will be found to have peacetime counterparts. Refrigeration and storage of ice cream and as a source of inert gas to hold down mold and decay on foods are rather familiar examples. A compilation of uses encountered (published in a combination wall chart and bulletin) in this survey includes use of CO_2 gas in blowing out moisture and foreign substances from tanks, piping and coils, detecting leaks. Two very important uses are in manufacturing penicillin and in producing DDT. Dry ice also helps to relieve headaches as it is used in the manufacture of salicylic acid, which in turn is used in making aspirin. Maintenance and repair applications include freezing water service connections, saving time on repairs; use as a solid with alcohol to freeze moisture out of low pressure traps. (Liquid Carbonic Corp., Chicago 23, Ill.)

Flexible Ducts Withstand Temperatures; Employ No Wire Reinforcements; Convey Flour, Sugar, Etc.

Out of wartime research on gas masks for horses has come a new type of flexible, corrugated duct made of fabric, rubber and plastics. It is expected to be widely used for conveying air, dust, fumes and abrasive substances on mechanical equipment and in industrial plants. The ducts — called "Multi-Flex" are light and durable and easy to install. They can be twisted and turned around obstructions. They are easily repaired and if accidentally crushed they resume shape as soon as pressure is released. They will withstand temperatures up to 350 degrees F. and down to 70 degrees below zero. They are made of glass and asbestos fabrics impregnated with synthetic rubber and plastics. No wire reinforcements are employed. Flexibility is obtained by means of corrugations. Ducts have been designed for heating and ventilating various vehicles and for carrying sugar, flour and similar substances. (United States Rubber Co., Rockefeller Center, New York, N. Y.)

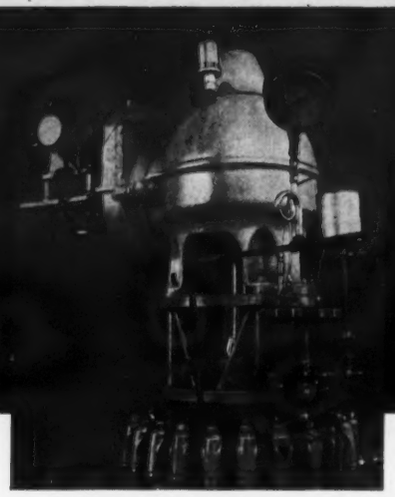
Rejuvenates Electrolyte by Means of Acetone

Burrs, machine tool marks, roughness and other processing blemishes are sometimes removed from metal parts by a brightening electrolytic process employing a glycerine hydrochloric electrolyte. Such electrolytes tend, after extended use, to become degenerated. A recent patent covers a method for rejuvenating such degenerated baths, by adding acetone in amounts up to 10 percent of the volume of the bath. (U. S. I. Chemical News).

Two New Refrigerator Cars Especially Built For Extensive Tests of Advanced Designs

The Chicago, Burlington & Quincy Railroad has recently built in its own shops two new refrigerator cars. Each incorporates advanced ideas in the protection of perishables while in transit. These test cars are exactly alike except for heating and cooling features. They are standard 40 foot cars. One of these is a car using two overhead ice bunkers which are wire mesh baskets — one at each end of the car. Bunker bulkheads are adjustable to provide increased loading space when ice bunkers are not required. When both ice bunkers are collapsed they provide 12% additional loading space to accommodate heavier loads or for loads requiring ventilation or body icing only. When car is moving fans under floor racks provide accelerated circulation. Portable motors may be used when car is standing. Portable heaters are used in this car. The other car is a new type using eight overhead ice bunkers. Cooled air circulates naturally through vents. Overhead bunkers produce transverse circulation as compared with longitudinal circulation in end bunker cars. This unit has an underslung charcoal heater. Both cars also have electric lights, thermometers and unusually wide doorways — 5 feet wide. The cars have been placed on exhibit at Union Station, Chicago.

(Continued on inside back cover)



How to select Pfaudler Stuffing Boxes FOR BEST SERVICE

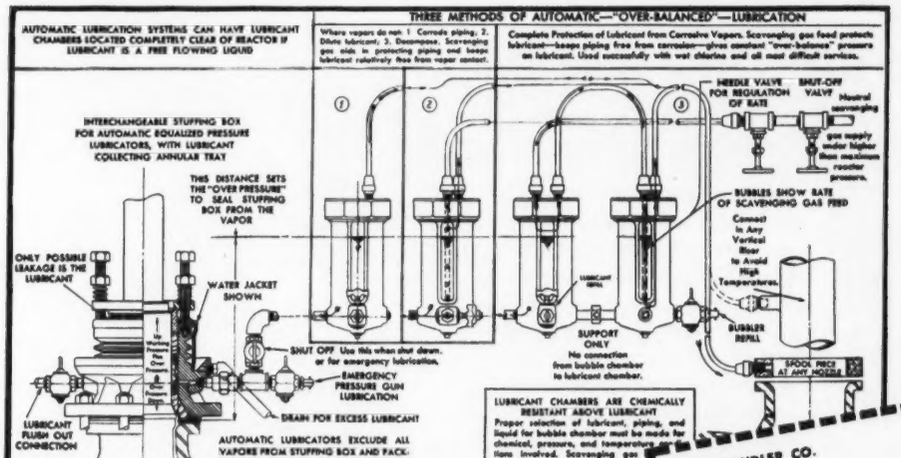
This test Pfaudler stuffing box assembly duplicates those used for high pressure work. All combinations of chemical conditions are simulated to ascertain most satisfactory packings and lubricants for a given service.

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This is too big a subject to cover here, but we want you to know that Pfaudler has worked out practical solutions to such problems which we will be glad to send on request. Use the coupon below.



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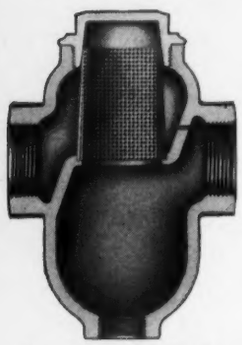
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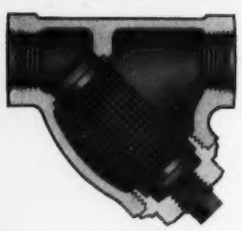
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A wide range of sizes in several types in iron and steel, with screwed or flanged ends, assures a Crane separator for most needs. All types supplied with screen of mesh and material best suited for service specified. See your Crane Catalog or write for Folder AD 1638.

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CHEMICAL PREVIEW

Edited for Production and Laboratory Men in the Chemical Process Industries

VOL. 9 MARCH-APRIL, 1946 NO. 2

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Charcoal retort at Cliffs-Dow Chemical Co., Marquette, Mich. Tube between retort-car rails, just above floor, houses four thermocouples in parallel, which detect average temperature and report it to a multiple point Micromax Recorder on firing floor.



Average Retort Temperature . . . Via MICROMAX

A continuous record of temperatures — 3 for each of 22 retorts — is supplied to Cliffs-Dow by its 11 Micromax Recorders. Average temperature is detected at each end of each retort, by thermocouples arranged as above, and temperature of mixed gases to the predriers is also shown. With the dependable guidance the instruments give, process control is closer, products are better.

Catalog N-33A will be sent on request, or an L&N engineer will work with you on a specific problem, if you prefer.

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When inquiring specify CP A3863 — see handy form pages 2-3

Cover Picture

Condenser equipment requirements vary widely for many factors are involved in making selections. The installation pictured on the cover is in an Iowa utility. The two pumps are 30 x 24 inch centrifugal water cooling pumps for circulating water to condensers. Each is rated at 12450 gpm with a 32 foot total head at 495 rpm, and driven by 125 hp 3 phase, 60 cycle, 2300 volt, squirrel cage induction motors. The two steam turbines are 15000 kw units, while the two condensers measure 18,000 square feet. An article on factors determining the design of condensers and heat exchangers is on page 8.

★

How To Use This Issue

If you are particularly interested in a specific type of product, turn first to the Directory of All Products in This Issue on pages 123 and 124. Here is an alphabetical listing of every product, whether it is featured editorially or in the advertising.

Then, to make sure you keep abreast of latest developments, perhaps something you have heard nothing about, you'll want to browse through the rest of the pages.

The Editors have searched far and wide to bring you this comprehensive Preview of product developments of help to you in your chemical processing work. Thus, they save you time, enable you to keep posted with a minimum of effort. When you find an item that interests you particularly, and you'd like more information on it, use the handy information request slip between pages 2 and 3. Just check the item that interests you, fill in your name and address and send this slip to the publishers. The information will come to you promptly.

★

How To Get This Magazine Regularly

Subscriptions to this magazine are NOT SOLD. Its circulation is restricted to men who are actively engaged, in responsible capacities, in chemical processing plants. You can receive it free of charge simply by sending your request to the publishers on your company letterhead and telling them of your connection in your chemical processing plant, if you are a chemist, engineer or executive. Your request subscription will start soon thereafter. There is no charge or obligation for this service.

★

Have You a New Product?

If you have recently developed a new or improved product, a piece of laboratory or plant equipment or a new material, of specific interest in any line of chemical manufacturing . . . send it to our editors.

Through CHEMICAL PREVIEW'S editorial pages they will introduce it to this great field . . . with more than 25,000 copies of this publication covering every plant. This service costs you nothing and there is no obligation. Write — The Editors, CHEMICAL PREVIEW, 737 North Michigan Avenue, Chicago 11, Illinois.

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—When inquiring specify CP A3864 . . . see information request blank, pgs. 2-3—

Decanter packed with 400 pounds of Fiberglas Tower Packing, providing 15,680 sq. ft. of surface area—in 22-inch column 15 feet high—handles fusel oil from 2000 bushels of grain daily.



How FIBERGLAS* Tower Packing Improved Distilling Efficiency . . .

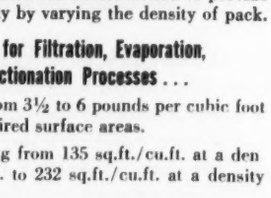
The use of Fiberglas Tower Packing by a leading distiller of Louisville, Kentucky, resulted in an important step up in the production of distilled spirits. The surface area, afforded by the 80 cubic feet of glass fiber packs, is many thousands of times the area provided in a decanter of conventional design.

This departure from conventional heavy metal baffles saved construction materials and costs. And the need for large storage tanks for after treatment, as well as the labor previously required for subsequent purification of the fusel oil, was also eliminated.

Fiberglas Tower Packing is made of glass fibers approximately .0080" in diameter, bonded with a water soluble binder to form packs 20" x 20" x 1". The fibers, being glass, are nonhygroscopic, are unaffected by most acids and will withstand temperatures up to 1000° F. They will not shrink, swell, rot or decay. Because the fibers are smooth and cylindrical, resistance to flow of liquids is comparatively low. The free volume between fibers can be controlled to provide almost any degree of porosity by varying the density of pack.

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TOWER PACKING

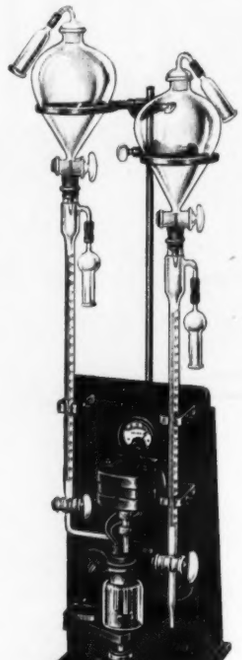
When inquiring specify CP A3865 — see handy form pages 2-3

New Solutions of Plant Problems

The solutions here given are selected because of their ideas in the application of available equipment or materials to overcoming certain tough plant problems. Many of these suggest basic ideas applicable in kindred or very different problem of process production.

Dead Stop End Point Titrator Speeds Moisture Determinations

Eliminates drying operations in testing grains, cereals, dehydrated foods, butter, etc.



Entire titrator assembly mounted on plastic panel

Problem — The determination of water content is a slow process and often involves drying the substance. Many organic chemicals and food products decompose during the drying and erroneous results are encountered. Procedures that will avoid such inaccuracies are desired and savings in time are also sought — some products requiring many hours in a vacuum oven.

Solution — Rapid, accurate moisture determinations are made using the "Waco" dead stop end point titrator. The Karl Fischer Reagent method is a chemical technic for the determination of water content. Heating sample is avoided and the procedure is based on the reaction between the sulphur dioxide and iodine which consumes water. The Reagent is a mixture of sulphur dioxide, iodine, pyridine and methyl alcohol and may be made in the laboratory or purchased. Since the products of the reaction between Reagent and water are yellow and the brown iodine color is difficult to detect — many samples also cause color interference — indicating the value of electrometric titration. Results have been reported with potentiometric method but the procedure is not simple nor is the voltage drop at the end point sufficiently sharp when used in a control laboratory. Accordingly the dead stop end point titrator discussed here was designed by its makers together with their collaborators for the detection of current flow. An e. m. f. of 10-15 millivolts is impressed upon two electrodes immersed in Karl Fischer Reagent. Sufficient current flows to deflect the microameter. As free iodine is used up by the addition of water, needle deflection will decrease with each addition of water. At the end point the pointer suddenly returns to a reading at or near its rest point. The instrument shows a sharp and reproducible end point — the needle of the microameter sweeps across the entire scale. Technic is simple and electronic amplification is not necessary. Exclusion of air is of extreme importance during titration and while samples are in contact with the Fischer Reagent before titration. Therefore a Standard Taper plastic plug is used and the sample bottles have Standard Taper grind to fit both the plastic plug and the stoppers. The double platinum electrode has a Standard Taper grind at the top to fit similar taper in the plug. The silent motor is completely enclosed and fumeproof and the swinging arm automatically starts the motor when it is swung into position below the bottle. A four page illustrated bulletin gives complete details on this apparatus, listing and describing all component parts and prices. In addition to an extensive bibliography the bulletin describes briefly and gives references to methods and procedures of interest in connection with the use of this instrument. The bibliography refers to determinations by this method with such materials as carbonyl compounds, naval stores, liquid petroleum fractions.

Results — The water content in solution determined within a few minutes. Savings in time are achieved and this method eliminates drying the samples. It is simply necessary to allow the ground sample to remain in contact with the Reagent for extraction of the water. Length of time varies depending on the nature and physical condition of the sample.

WILKENS-ANDERSON CO., Dept. CP, 111 North Canal St., Chicago, Ill.

When inquiring specify CP A3866 — see handy form pages 2-3

NIAGARA Aero Cooling Does It Better!

And Saves Cooling Water Cost

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NIAGARA Aero Heat Exchanger cools liquids or gases to 10° of atmospheric wet bulb temperature and holds to tolerances of 2°F.

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Furnishes drier compressed air—eliminates half the moisture allowed by conventional after-cooling methods.

Holding Quenching Baths to Temperature

Heat treaters increase production, improve quality, decrease rejections by using NIAGARA Aero Heat Exchanger to control quenching bath temperatures.

Condensing Refrigerant Gases

NIAGARA Duo-Pass Aero Condenser increases refrigerating plant capacity, saves power. Duo-Pass prevents scaling and clogging of condensers.

NIAGARA AERO HEAT EXCHANGER is used in liquid cooling in industrial and chemical processess, water jacket cooling, hydraulic fluid, transformer oil, lubricating and cutting oil cooling, vapor and steam condensing.

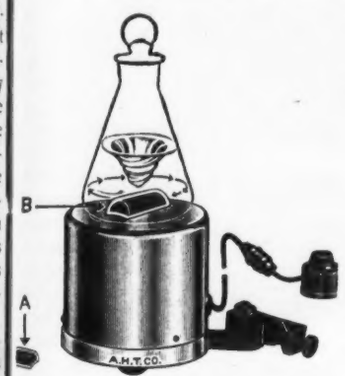
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When inquiring specify CP A3867 — see handy form pages 2-3

New Solutions

Magnetic Laboratory Stirrer for Use in Open or Closed Vessels

Utilize glass enclosed steel bar in liquid rotated by magnetic force below container



Magnetic stirring in stoppered flask

Problems — The numerous stirring operations to be encountered in the laboratory in many cases suggest the desirability of more efficient and less complicated apparatus. This is so in methods requiring reactions in closed systems. Included in these classifications are: Instances where gas volume changes must be observed, as in hydrogenation experiments; where high vacuum or overpressure should be maintained; where moisture and air should be excluded, as in titrations involving the use of Carl Fischer reagent; where gas phase over the surface of the liquid should not be mixed into the solution; where change in turbulence is required without disturbance of heavier phase above stirred portion; where small containers are used as in microchemical procedures.

Solution — A convenient and easily available device for a wide range of laboratory stirring requirements is a quiet running, compact apparatus which utilizes a rotating field of magnetic force to induce variable speed stirring action within either closed or open vessels. One of the most important advantages of this magnetic method is the possibility of stirring in a closed system without any mechanical connections. It lends itself to complicated set ups with the inherent omission of one inlet. In complicated assemblies, where the reaction flask is already provided with several openings for gas inlets or outlets, reflux condenser, thermometer, distilling heads, dropping funnels, etc., magnetic stirring eliminates an additional inlet into the reaction flask which otherwise would further complicate the set-up. Stirring is accomplished by means of a small magnetized bar, sealed in Pyrex glass which is placed in the liquid to be stirred and is rotated by magnetic force applied below the container. The assembly that is placed below the container consists of a permanent bar magnet attached to the shaft of an electric motor in an aluminum housing with flat top 4⅜" in diameter and 4¾" high. Any type of vessel of glass, porcelain, or non-magnetic metal can be used, — flasks, beakers, culture dishes. The magnetized stirring bars (A and B) included with the apparatus are ⅞ inch and 1½ inches long. The half-round stirring bars offer certain advantages. Other shapes, sizes and types can be produced. The apparatus as described is suitable for any stirring operation which involves 1 ml. to 1 liter of liquids with viscosities up to that of 50% glycerol solution.

ARTHUR H. THOMAS CO., Dept. CP, 230 South 7th St., Philadelphia, Pa.

When inquiring specify CP A3868 — see handy form pages 2-3

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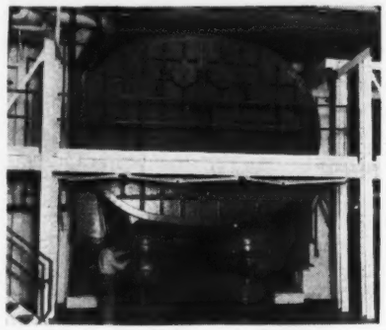
ALCOA ALUMINUM

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New Solutions

Complete Data Aids in Selection of Condensers

Data is important to manufacturers in speeding production and delivery



AC Surface Condenser

Problem — The selection of properly designed condensers and heat exchangers involves a more complete knowledge of actual conditions under which the equipment will operate than does much other equipment used in the processing industries. (The cover illustration for this issue of Chemical Preview shows an installation of modern units combined for meeting specific requirements. The accompanying illustration shows an AC surface condenser rated 50,000 square feet and having a single pass unit with divided water box.) In providing manufacturers with detailed information speedier completion of the required machinery should be greatly facilitated.

Solution — It is important to realize that condensing equipment is not only dependent upon the characteristics of the generating equipment but also upon weather and water conditions and space limitations. Space available for equipment and also for tube removal often determine tube length. However, proper portions to give adequate distribution of liquids must also be taken into consideration. Tube diameters are largely determined by the conditions of the installation and require a thorough knowledge of the heating and cooling substances, as in the case of water, for a condenser, its corrosive and fouling characteristics determine the tube size. Maximum, minimum and average inlet water temperature and quantities of water available are important factors, as these determine the physical size of the condensing unit. Consideration must be given to inlet water temperature, since too high a temperature may require a condenser of such size that the pumping charge and initial investment would make its use uneconomical. Similar consideration must be given in the case of heaters and coolers. In the event special fluids are to be handled and where published information concerning their qualities is not readily available, it is desirable that their specific heat, specific gravity, viscosity, thermo-conductivity and other information be supplied. Following is a summary of information that is important in specifying new equipment for liquid heating and cooling: (1) Amount of fluid involved; (2) Inlet temperature and pressure; (3) Outlet temperatures; (4) Allowance pressure drop; (5) Corrosion characteristics; (6) Fluid Characteristics; (7) Material specifications, if any preferred; (8) Specific heat; (9) Specific gravity; (10) Viscosity; (11) Other pertinent data; (12) Thermo-conductivity. (Nos. 8 and 12 required only if published data is not available.)

ALLIS CHALMERS MANUFACTURING CO., Dept. CP, Milwaukee, Wis.

When inquiring specify CP A3871 — see handy form pages 2-3

New Solutions

Composition Valve Eliminates Meter Failure

High strength, inert, self-lubricating material used in replacing vital parts



Corrosion-proof rotary valve

Problem — Meter manufacturer encountered difficulties with a meter valve for low octane gasoline. Sticking and friction due to wax and gummy deposits caused inaccuracies in measurement and service failures.

Solution — In the specific case cited a special grade of "Morganite," was developed replacing rotary valve of conventional material with marked reduction in operating costs and elimination of sticking, gumming, etc. The basic ingredients of Morganite are natural graphite, petroleum coke, lamp black and retort carbon combined with pitches, tars and other binders. The proportion of each is controlled for specific results, and metals may be added for special qualities. The powders are molded under pressures up to 18 tons per square inch. Maximum diameters usually do not exceed fifteen inches with thickness similarly limited. It is immune to acid, alkali and most solvents. It is readily molded to .001 inch. Morganite is self-lubricating, chemically inert, light weight. This feature is illustrated in its use in wabble plates.

MORGANITE BRUSH CO., Dept. CP, 3304 48th Ave., Long Island City, N. Y.

When inquiring specify CP A3872
— see handy form pages 2-3

★

Catalogs On Couplings & Fittings

Catalog No. 46-A shows "Renewable" Couplings, Barbed Insert Couplings, Adapters, Hose, Assemblies, Specialties and Replacement Parts for service stations, industrial plants. New items in the Eastman line include a brass air chuck and a torpedo-type blow gun. No. 46-H describes "Pressed-On" and "Renewable" Couplings and Hydraulic Control Hose Units. Of special interest to operators of hydraulically controlled equipment, this book is specially arranged to show the hose couplings or hose assemblies best adapted to the customer's requirements.

EASTMAN MFG. CO., Dept. CP, Manitowoc, Mich.

When inquiring specify CP A3873
— see handy form pages 2-3

For more information on product at right, specify CP A3874 . . . see information request blank between pages 2-3.

Ready to connect to your present equipment...

GLASS PIPE

THAT DEFEATS CORROSION— MAINTAINS PRODUCT PURITY



A.S.M.E. Flange Set—for connecting glass pipe to A.S.M.E. or A.S.A. drilled flanges.

Tubing Ferrule Flange Set—for connecting glass pipe to metal tubing or unthreaded metal pipe.

Glass Lined Flange Adaptor Set—for connecting glass pipe to glass lined flanges.

CONNECTING PYREX brand Glass Pipe to metal pipe, tanks, valves and other plant equipment is easy with the simple adaptor flanges shown below. With these adaptor fittings you can easily discover where and how PYREX Pipe can be used profitably in your plant.

PYREX Pipe is practical plant equipment. Its sturdiness and serviceability have been proved by installations that have been in operation for many years. It is the only pipe that gives you the combined advantages of visibility, corrosion resistance and purity maintenance. It can be installed and used with confidence.

For complete details on PYREX Pipe, write to the Industrial Sales Department CP-3 Corning Glass Works, Corning, N. Y.

VISIBILITY. The crystal clear transparency of PYREX Pipe permits visual inspection of every foot of your pipe line at any time. This feature serves to forewarn you of unexpected trouble in your pipe lines. In some cases it has saved the entire amount of the investment in PYREX Pipe in a single installation.

MAINTAINING PRODUCT PURITY. PYREX Pipe is resistant to all acids (except H.F.) and moderate alkalis. There is no heavy metal pick-up or danger of metallic contamination. PYREX Pipe lines assure the ultimate in obtaining product purity.

EASE OF INSTALLATION. Your own men can install a PYREX Glass Pipe Line. No special tools or special training are required. The Pipe, the fittings and the hardware come to your installation point ready for assembly. Stock adaptor flanges are available to connect PYREX Pipe to metal pipe and other plant equipment.

SIZES AND FITTINGS. PYREX Glass Pipe is now available in 1″, 1½″, 2″, 3″ and 4″. A complete line of standard PYREX fittings includes ells, tees, return bends, laterals, and reducers. Special fittings can be readily made to your specifications. Standard fittings and adaptor connections are available with which to connect PYREX Pipe to your present equipment.

LOW COST. The initial cost of PYREX Pipe (accessories included) is about the same or less than the cost of full weight copper or brass piping in comparable sizes, and is considerably less than the cost of most other corrosion resistant alloys. Whether you figure costs of new equipment in terms of initial outlay or in terms of over-all costs—spread over the length of service it will give you—PYREX Pipe is your best bet.

PRESSURES AND TEMPERATURES. Operating temperatures as high as 250°F. are not unusual—and temperatures as high as 400°F. can be considered. Most installations operate at pressures up to 50 p.s.i.—but pressures as high as 100 p.s.i. can be considered.

CORNING GLASS WORKS
CORNING, NEW YORK



PYREX GLASS PIPE
AND INDICATES MANUFACTURE BY CORNING GLASS WORKS, CORNING, NEW YORK

INDUSTRIAL SALES DEPT., CP-3
Corning Glass Works, Corning, New York

Please send me 1A-2 "PYREX Pipe" for the Process Industry.

Name..... Title.....

Firm.....

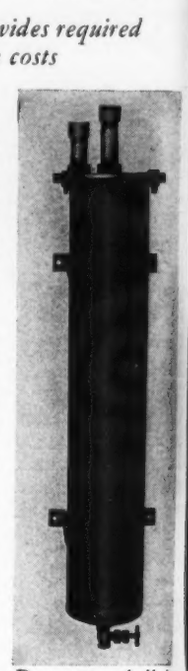
Address.....



New Solutions

Air-Gas Line Dryer Uses Calcium Chloride, Fiberglas, Alumnia

Choice of cartridge media provides required efficiency at minimum costs



Dryer outer shell is 6" OD seamless tubing

Problem — Removal of entrained moisture from air lines is a problem confronting many industrial plants. Gas lines also involve similar difficulties. An example is to be found in removal of moisture from generator acetylene used in conjunction with units for delivering fixed quantities of vaporized flux through torches used for oxyacetylene welding or brazing. It was found that moisture in the acetylene gas coming from generators was the cause of the precipitation of some of the flux components, eventually clogging the fluxer orifices. In connection with regular plant air line extended during the rush of war production without provision for removal of entrained moisture caused by condensation difficulties have been experienced.

Solution — A solution is offered by a dryer which was developed by the manufacturer of the "Gasflux" units for delivering vaporized flux which are referred to above. This dryer is exceptionally adaptable to a range of requirements because it is designed to use different drying media for accomplishing different degrees of moisture removal. Although originally designed for use in connection with the "Gasflux" units, the dryer has its largest field of application with air line installations. Construction of the dryer embodies an outer shell of 6 inch OD seamless steel tubing and a removable inner shell or cartridge of rolled sheet metal having a perforated metal bottom. A cast bronze head with inlet and outlet openings is bolted to a flange welded to the outer shell. Incoming gas or air must first pass downward between the inner and outer shell, thus trapping out entrained moisture. The gas or air then passes upward through the drying medium the full length of the cartridge in order to reach the outlet valve. Depending upon the drying efficiency that is required, there is a choice of three drying media to be used in the cartridge. These are: Fiberglas — This relatively new material acts as a superior baffle and is non-absorbent. Its action is mechanical. Entrained moisture is removed but not all of the water vapor. Drying efficiency is high enough for many air line applications. Calcium Chloride — This medium absorbs 90% of its own weight in moisture and removes water vapor to the extent required by most uses of air and gas. Activated Alumina is most efficient but will absorb only 12 to 14% of its weight in water vapor. It is recommended as a filter for these units where thoroughly dry gas or air, free from water vapor is required. After being used to capacity, the cartridge can be reactivated by heating. It is sometimes economical to use two dryers charged with different media, in series. In such an arrangement, a large part of the moisture is removed with the less efficient and less expensive medium, the second dryer removing the remaining moisture. This dryer, named the Gasflux 636 Series Dryer, may be bolted to the wall through brackets which are welded to the shell. It may

—When inquiring specify CP A3875 . . . see information request blank, pgs. 2-3—

also be suspended by pipe straps. Complete details concerning these units and their use in specific installations on request.

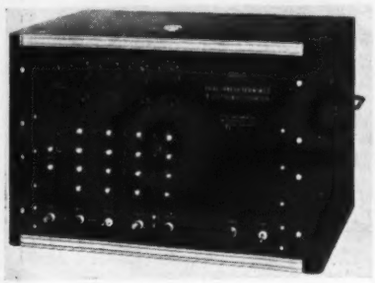
THE GASFLUX CO., Dept. CP, 189 Wayne St., Mansfield, Ohio.

When inquiring specify CP A3876 — see handy form pages 2-3

★

Predetermined Electronic Counter

Meets wide range of specialized requirements in handling items from pills to sheet stock



Electronic counter — switches set channels at desired number

Problems — Counting operations are a specialized problem in connection with many large production items. Examples of such cases are to be found in slide fastener manufacture, manufacture of pills, buttons and in certain large requirements such as checking predetermined numbers of rapidly moving sheet stock. Where unit price of the item to be packaged is small handling costs and any loss or waste are important factors.

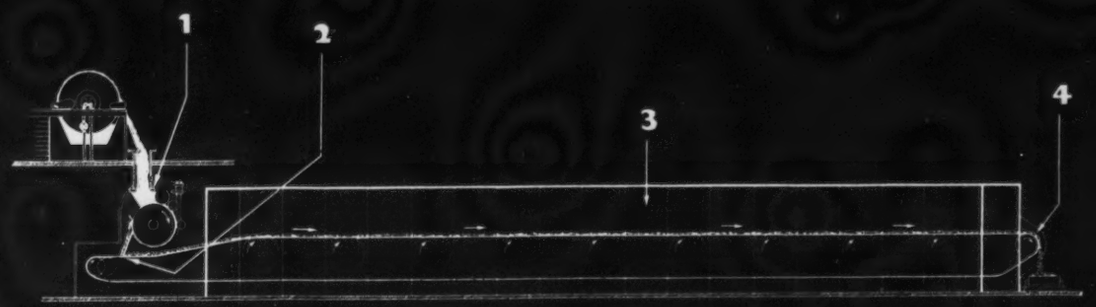
Solution — A device which may be described as a "Dual Predetermined Electronic Counter" is now in service in a number of installations where requirements like those mentioned were to be met. In the slide fastener application the use of such an electronic unit, the length and spacing of the fasteners can be varied quickly and conveniently, and in addition greater accuracy of fastener length is assured. A convenient control is also provided for rolling mills so that moving sheet stock may be halted or the flow of materials diverted. The unit represents an innovation in the field of industrial control, where the process to be controlled can be set up by discrete predetermined numbers. The instrument employs the maker's 4-tube counter decade circuits. These decades are arranged to give two independent predetermining channels in which any numbers from 0-10,000 may be initially set up by simply manipulating rotary switches mounted on the front panel. During the operation of the equipment each channel is alternately preset to the desired predetermined. This function is accomplished automatically by self-contained circuits, and occurs in much less than (1) millisecond — a distinctive feature. The input is arranged for operation with either make-contacts or with sharp negative pulses, as specified. Input frequencies may be in excess of 1000 cycles per second. The output consists of an ultra-high-speed relay with single pole double throw contacts. The relay is energized at the end of one predetermined count cycle and remains energized throughout the other predetermined count cycle. Power operation is obtained from a 110 v., 60 c. current. Units are available for any specified total count with either the single or dual predetermining channels.

POTTER INSTRUMENT CO., Dept. CP, 136 Roosevelt Ave., Flushing, N. Y.

When inquiring specify CP A3877 — see handy form pages 2-3

PROCTOR *Aero-Form* DRYER

with Fin Drum Feed—Speeds Output of CALCIUM CARBONATE



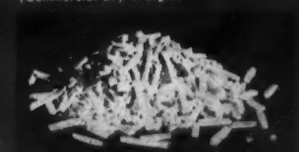
1. Calcium carbonate is delivered from continuous filter to hopper of fin drum feed of dryer with moisture content of approximately 110% (B.D.W.B.*).

2. Partially dried on fin drum feed, material is pre-formed, into small sticks of uniform size and thickness and discharged to conveyor of dryer.

3. Loaded to a uniform depth on moving conveyor, material passes through 9-unit dryer. Temperatures begin at 270° F. in first compartment, increase to 280° F. in second compartment and to 290° F. in third compartment.

4. Calcium carbonate, uniformly dried, is discharged from dryer with moisture content of 0.25% (B.D.W.B.), at the rate of 2,750 lbs. (C.D.W.†) per hour.

*Bone Dry Weight Basis
†Commercial Dry Weight.



Close-up of "fin drum sticks" shows form in which material enters dryer . . . allowing through-circulation.

ONE OF MANY TYPICAL APPLICATIONS FOR THIS MODERN CONTINUOUS DRYING SYSTEM

This application is but one of many, where this system is used for the continuous drying of wet-solids. In each case, the material comes to the feed hopper after mechanical dewatering. It is then pressed, by means of rollers, into the grooved surface of the internally heated, revolving fin drum which forms the feeding device. In this way, the material is dried sufficiently to be discharged, from the drum, to the conveyor of the dryer in the form of small sticks—of uniform thickness. It is then possible to circulate heated air *through* the bed of material on the conveyor and rapid, uniform, thorough drying results. This particular pre-forming and drying system may or may not be suited to the physical characteristics of your product. However, it demonstrates what we mean when we say Proctor drying systems are scientifically engineered to meet individual plant and product requirements. This system—in fact every Proctor system in operation—was installed only after it was conclusively proven in the laboratory that it was the ideal system for the individual problem. Proctor engineers may well save you hours of production time and reduce your costs materially—if you let them consider your drying problem today!

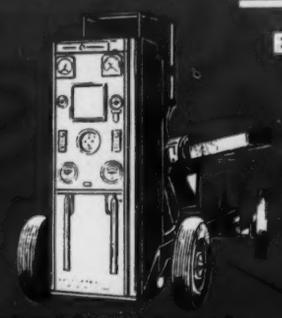
P & S

PROCTOR & SCHWARTZ · INC ·

SEVENTH STREET and TABOR ROAD · PHILADELPHIA 20 · PA ·

When inquiring specify CP A3878 . . . see information request blank, pgs. 2-3

UNEXCELLED FACILITIES FOR THE
COMPLETE FABRICATION OF ANY TYPE
EQUIPMENT—FROM ANY METAL OR ALLOY



—up to
6 inches in thickness

Medium X-Ray and Gamma Ray Equipment for precision manufacturing.



7000 Ton Pressure Plate Forming Press.

—and to the most exacting specifications

Turn to Struthers Wells—when your equipment calls for "out-of-the ordinary" fabricating or engineering ability either in size, intricate design or for any specialized service.

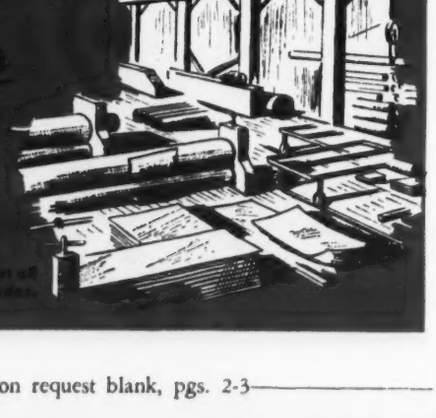
Our engineers will cooperate with you anytime, any place.



Largest Gas-Fired Annealing Furnace of its kind.



Two Large Welding Units —172 Welding Machines —Manipulators.



Craftsmanship to meet all A.S.M.E. or A.P.I. Codes.

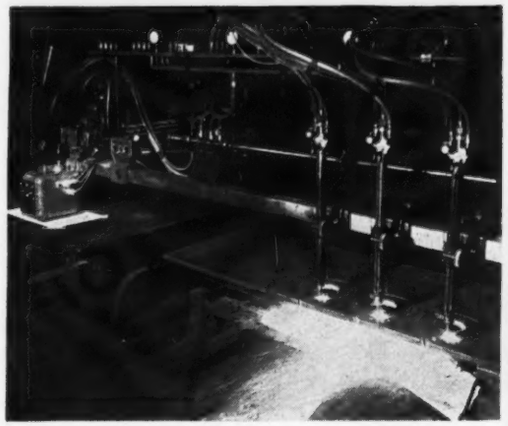
SW

STRUTHERS WELLS CORP.
PROCESS EQUIPMENT DIVISION
WARREN, PENNA.
Plants at Warren, Pa. and Titusville, Pa.
Offices in Principal Cities

New Solutions

Electronic Bloodhound Controls Intricate Oxyacetyline Cutting

No metal, wood templates needed; shapes cut from drawing with exacting precision



Electronic control installed on Oxygraph machine

Problem — Expansion of present applications of torch cutting machines in industry has been a matter of much interest, especially in view of efforts to make intricate design cutting practical and precise.

Solution — The "Electric Bloodhound" is the quite suitable name for a new "electric eye" tracing device for pantograph type oxyacetylene cutting machines. It radically simplifies steel cutting operations and makes intricate design cutting a practical, comparatively easy operation. Electronically controlled tracing equipment cuts the most complicated shapes with great precision from quickly prepared outline drawings or silhouettes of the desired piece. There are no limitations to the variety of designs which may be cut as the electronic tracing head faithfully follows the most complex curves and angles with great fidelity. A new field of application has been opened in the machine production cutting industries through the "chain" method of reproduction made possible with this type of template. In this chain method, a series of identical shapes are drawn on the template and connected with a continuous line, making production cutting of several pieces possible in a single operation. When utilizing this system alterations may be made quickly, a distinct advantage when small dimensional changes are made in a part. Where cutting machines are used for plant maintenance work, jigs and fixtures may now be shape cut with comparatively little effort. Templates required for electronically controlled cutting are simple outline drawings or silhouettes. A black outline about ⅛" wide against a white background is satisfactory as is any color combination that provides adequate light contrast. Such drawings can be treated with a protective coating for long life. This electronic tracing equipment consists of two units—tracing head and control box. All working parts are fully protected and tubes designed for long life. The assembly is easily attached to any Oxygraph or Travograph cutting machine in place of conventional equipment.

Results — Expensive metal and wood templates and other mechanical or manual auxiliary guiding devices not needed. In plants where a great variety of special shape cut pieces are made, the economy of this low cost template prepara-

When inquiring specify CP A3879 . . . see information request blank, pgs. 2-3

tion is of advantage. Economy and reduced scrap are also factors. Shape cutting is not limited to the ability of the tracing device to follow template contour and sharp corners may be cut without subsequent machining or the use of elaborate jigs. Shapes are now cut directly from a drawing with exacting precision — whether one or one thousand pieces are desired. Human error is eliminated. (The device has been developed and produced in collaboration with the General Electric Co.) Complete information concerning its application to individual requirements is available from the organization named below.

AIR REDUCTION SALES CO., Dept. CP, 60 E. 42nd St., New York 17, N. Y.

When inquiring specify CP A3880 — see handy form pages 2-3

★

Centralized Lubrication Cuts Operating, Maintenance Costs and Number of Rejects

Advantages of the centralized lubricating system when installing machine equipment for post-war operations are pointed out in an illustrated four-page folder, "When you Reconvert". Basic facts are set forth in a compact summary showing how this System operates, with statements of specific results attained through its use. As an example the folder points out that one oiler per shift formerly was required to lubricate a large machine. Installation of the system not only released the three for other work, but in addition reduced oil consumption from 6 gallons to 1 pint per day. Bearing replacements for two 30-ton cranes which formerly amounted to $800 in six months have been eliminated, along with a dangerous job for the men who worked on the cranes. Production from one large press was increased 12 per cent by eliminating a shut-down every four hours to lubricate by hand. At the same time maintenance cost was reduced 75 percent through elimination of bearing repairs. A cut in rejections saved more than $500 per day by reducing the wear on roll-necks of a 3-high plate mill. A saving of 10 per cent in power also was attained through improved lubrication. In a coal-cleaning plant Farval cut the oiling time from 10 hours to 10 minutes. One man now lubricates 431 bearings in complete safety. Lubrication costs have been reduced $1,000 per month on an installation for 43 rubber mills, plus savings of $28 per day in lubricant consumption. The system delivers measured amounts of oil or grease from a central supply unit to the farthest bearing surfaces, at any predetermined interval. It consists of a central pumping unit, two main supply lines and a measuring valve for each bearing. The complete range of Farval Systems, including both manual and automatic types for a wide variety of industrial equipment, are illustrated. A copy of the folder may be obtained from the company.

THE FARVAL CORP., Dept. CP, 3249 E. 80th St., Cleveland 4, Ohio.

When inquiring specify CP A3881 — see handy form pages 2-3

Has a recent use of your equipment solved a difficult chemical plant problem? The equipment may be new or from your standard line. For publication, data should state definitely (1) Nature of operation in question, i.e., cooking, cooling, mixing; (2) Difficulties involved such as control of temperature, product uniformity, lubrication or cleaning; (3) How was equipment used — in standard or modified form? (4) Results, facts on savings in time, labor, increased production or similar cost factors or extent of product improvement. Address the Editors.

CHEMICAL PREVIEW
737 N. Michigan Chicago 11, Ill.

8 IMPORTANT REASONS—

Why It Will Pay You to Specify

RELIANCE Series "C" MOTORS

1. **Protecting enclosures** keep out dirt, chips, oil, excess moisture.
2. **Steel stators for strength.**
3. **Thirteen-step winding treatment,** for maximum stator protection.
4. **Pressure cast aluminum rotors** provide trouble-free windings.
5. **Heavy shafts,** liberally designed for added strength.
6. **Precision bearing mount** affords *real* protection to bearings and windings.
7. **Optional lead outlet arrangement** permits machine mounting with elimination of conduit box.
8. **Flange and face type brackets** offer alternative methods of machine application.



Write today for Bulletin C-118 which gives more complete details on these 8 advantages and offers many additional reasons why it will pay you to specify Reliance Series C Motors.

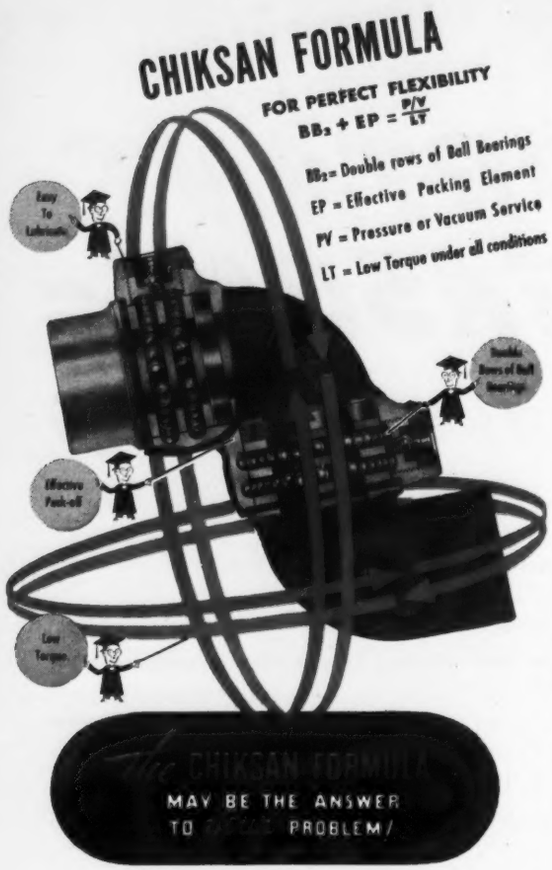
RELIANCE ELECTRIC & ENGINEERING CO.

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RELIANCE A-C D-C MOTORS

When inquiring specify CP A3882 . . . see information request blank, pgs. 2-3



Chiksan flexibility is so precisely engineered that the elements which provide for easy turning and perfect seal under pressure or vacuum can be stated in a few simple symbols. This streamlined design, expressed in precision manufacture, has won world-wide acceptance for Chiksan Ball-Bearing Swivel Joints wherever movement or rotation is required in pipe lines handling liquids, vapors and gases... in aircraft... electronics... railroads ...chemical and food processing plants... refineries... marine installations...open hearth furnaces and rolling mills... and hundreds of other applications. The new Chiksan Catalog illustrates and describes over 500 different Types, Styles and Sizes. Your Engineering Department should have a copy for ready reference.

CHIKSAN REPRESENTATIVES IN PRINCIPAL CITIES
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CHIKSAN BALL BEARING SWIVEL JOINTS FOR ALL PURPOSES
CHIKSAN COMPANY
BREA, CALIFORNIA

When inquiring specify CP A3883 — see handy form pages 2-3



New Materials

New Resin Surfacing Material For Decorative Laminates

Possible applications: — structures having cores of phenolic plywood or asbestos fiber; also shaped articles such as instrument cases

Uses — The first of a new family of laminating plastics, Bakelite C-5 Laminating Resin XJ-17694, is designed specifically as a surfacing material for decorative laminates. *Features* — The new resin, which is entirely different from commercially known types of synthetic plastics, has a number of properties and characteristics of unusual interest. In physical form, XJ-17694 is a xylene-toluene solution with a resin content of 50 %. It is rated Number 10 on the Gardner Color Scale with a viscosity reading of 15 to 18 centipoises, specific gravity of approximately 1.0 and a flash point of 45 degrees F. Its weight per gallon is 8.3 lbs. This new laminating resin imparts to the laminated structure many important properties. Among them are the following: Broad Color Range — For practical purposes all colors are obtainable, including various grades of white and pastels. In addition, these resins impart the extremely high gloss and lustrous surface desirable in quality laminates. Flexibility — C — 5 Resin surfaces provide hard continuous films, yet retain such good flexibility that the laminated structure may be postformed within limits. Abrasion Resistance — Surfaces imparted to the laminate are highly scratch and scar-resistant and have good marproof qualities. By the Taber Abraser Test total loss after 2000 revolutions is only 0.14 g. Chemical Resistance — Highly resistant to organic solvents, soap solutions, citric and other fruit acids and boiling water. Craze resistance — Crazing tendency as measured by one half hour in boiling water followed by a twenty-four hour bake at 105 degrees C. is nil, up to film thicknesses as high as 12 to 14 mils. Stain Resistance — Surfaces of all colors, prepared over a wide range of molding conditions, consistently passed "Teapot Test" and were unaffected by water soluble dyes. Arc Resistance — Good. As measured by ASTM procedure the resins gave values to the order of 125 seconds.

Applications — The C-5 Resins are highly versatile, in that wide latitude of molding temperatures and pressures is practical. This versatility extends to the methods by which the resin surfaces may be applied. Here are some of the fabricating advantages. (1) The most flexible method for the surfacing of laminated structures in the Bakelite Permachrome process. Briefly this involves spraying the resin on the polished surface of the press plate, precuring at elevated temperatures for a short period, and finally transferring the set-up film from the press plate to the core stock during the pressing operations. While the method of accomplishing this precure will naturally depend upon the availability of equipment, it is feasible that a process could be instituted by which the plate would pass through continuous automatic sprayers and following this step, be conveyed on a moving belt through drying ovens or under banks of infrared lamps. The precure of the resin is carried to the point where the resin film is dry to the touch while still hot. (2) Since the resin is more flexible than other surfacing resins for laminated structures, it has possibilities for postforming applications. This characteristic of flexibility also indicates that some drawing can be tolerated during the forming operation. (3) If desirable, already preshaped laminated structures may be surfaced with this C-5 Resin by the method above described. (4) It is in the preparation of decorative inlay designs that the versatility of the new resins is very important. Using the Permachrome process, inlay designs may be applied to the press plate by block printing, roller coating, silk screen printing or stencil spraying. After precuring the design the background color is sprayed on and also precured. This is followed by transfer to the core stock by the usual hot pressing operation. A technical bulletin entitled "Bakelite C-5 Laminating Resins - XL17694" is available on request.

BAKELITE CORP., Dept. CP, 30 East 42nd St., New York 17, N. Y.

When inquiring specify CP A3884 — see handy form pages 2-3

★

Geranium Body For Use in Soaps

Used in Oil of Geranium; also in formulation of many other types of perfume odors

Uses — Odor of Geranium usually imparted by means of the natural Oil of Geranium either Bourbon or Algeria long an important item in the perfuming of soaps and other types of products has been scarce. Thus Geranium Body is of particular current value . . It enchances the odor of Geranium in soaps.

Features — In Oil of Geranium to which it is added — even in proportions of 10% — the odor gives the impres

AIRCO NITROGEN
"Prescription-Blended" to meet your specific requirements



No matter what your need may be, Airco can supply nitrogen in a wide range of grades—a type meeting your specifications. The uniformity and adherence to specifications of Airco Nitrogen are definite factors contributing to its satisfactory use.

Airco's complete line of gases includes Hydrogen and Rare Gases. Your nearby Airco office can supply your needs.

AIRCO
AIR REDUCTION
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In Texas: Magnolia Airco Gas Prod. Co. • Gen. Offices: Houston 1, Texas
Offices in all Principal Cities
Represented Internationally by Airco Export Corporation

When inquiring specify CP A3885 — see handy form pages 2-3

sion of finer quality and is more lasting in soaps than one not utilizing the body.

Description — Geranium is the Di-Iso-Propyl Ketal of Catechol. It is extraordinarily stable as are all ketals in the presence of alkali. It addition to its value as used in modifying the odor of Oil of Geranium it has very useful in the formation of many other types of perfume odors. A typical formula illustrating the manner in which it might be used in the compounding of a rose used in perfumes, creams and face powders is as follows: 22 parts of good Geraniol; 23 parts of Nerol; 2 parts of Geranium Body; 3 parts Phenyl Acet Aldehyde Di Methyl Acetal; 2 ½ parts Ambriol; 10 parts of Floranol; 3/10 of a part of Aldehyde C — 8, 1 % solution in Benzyl Alcohol; 2/10 parts of Aldehyde C — 9, 1 % solution in Benzyl Alcohol, 2 parts of Otto of Rose Bulgarian Pure. This is said to make a rose odor which is unusually lasting.

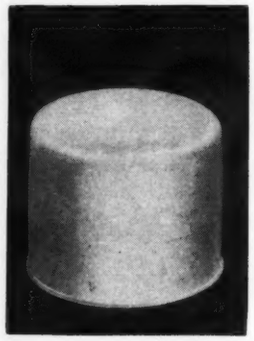
GENERAL DRUG CO. (Aromatics Div.) Dept. CP, 125 Barclay St., New York 7, N. Y.

When inquiring specify CP A3886 — see handy form pages 2-3

★

Metal Parts Finished by Roller Coating Method Before Forming

Process also used on wood, plastic; applies paint, enamel, varnish, plastic coatings



Cup roller coated with vinyl plastic before forming

Uses — This new method of roller coating many metal, wood and plastic products provides for finishing such items before stamping, forming or other fabricating.

Features — Combining a specially designed coating machine with carefully engineered infrared baking equipment, the new method produces roller coated sheets completely baked in three minutes or less, as compared with the 15 to 20 minute periods commonly regarded as normal for the process.

Description — The finishing service, — not the machinery — is supplied by this organization. However, such a considerable reduction in finishing time and costs has been effected by this process that it has been indicated as practical for manufacturers to ship work to the company's plant for roller coating. Various types of finishes are employed, including paint, enamel, lacquer, varnish and plastic coatings. The process was developed especially for the use of vinyl base materials, which produce extremely tough coatings. These plastic materials stand up under deep drawing of metal parts. All types of coatings are applied with great uniformity of thickness, tolerances as close as .001 inch being held to customers specifications, and uniform color shades, including delicate pastels are maintained. Photo shows deep drawn metal cup, roller coated with a vinyl plastic coating before forming.

JAPAN CO., Dept. CP, 5103 Lakeside Ave., Cleveland, Ohio.

When inquiring specify CP A3887 — see handy form pages 2-3

ortho-Nitrobiphenyl plasticizer

1 available

2 low cost

3 general purpose

PHYSICAL AND CHEMICAL PROPERTIES
(From Typical Analyses)

MOLECULAR WEIGHT	199.20
MELTING POINT	APPROX. 35°C. (Supercools Readily)
BOILING POINT AT 10 MM.	APPROX. 172°C.
BOILING POINT AT 760 MM.	APPROX. 330°C.
REFRACTIVE INDEX AT 25°C.*	APPROX. 1.613
SPECIFIC GRAVITY AT 40° 15.5°C.	APPROX. 1.189
VISCOSITY AT 25°C.*	38 CENTIPOISES
VISCOSITY AT 45°C.	12 CENTIPOISES
WEIGHT/GALLON	APPROX. 9.9 LBS.
FLASH POINT	143°C. (289.5°F.)
FIRE POINT	179°C. (354.5°F.)

*Obtained on supercooled material.

SOLUBILITY: Practically insoluble in water (either hot or cold). Readily soluble in—

Benzene	Ethyl Acetate	Mineral Spirits
Ethyl Alcohol	Amyl Acetate	Pine Oil
Methyl Alcohol	Ortho-Dichlorobenzene	Turpentine
Ether	Carbon Tetrachloride	Linseed Oil
Acetone	Perchlorethylene	Soya Bean Oil
Methyl Ethyl Ketone	Glacial Acetic Acid	Corn Oil

TOXICITY: For information, write for technical bulletin O-D-700.

Due to its wide range of compatibility, Monsanto ortho-Nitrobiphenyl finds many uses in most types of lacquer and plastic compositions. It can be used alone, or with other plasticizers—and is applicable to the entire range of synthetic resins, from the cellulose esters and ethers through the vinyls and vinyl copolymers. It is compatible with alkyds and some synthetic rubbers.

The low cost of ortho-Nitrobiphenyl—6 cents a pound, in carload lots—is additionally in favor of this all-round plasticizer. It is suggested that you consider its use as:

(1) A camphor substitute in cellulose nitrate compositions
(2) A plasticizer in thermoplastic molding compositions
(3) A plasticizer in lacquer-type coatings to improve water, acid and alkali resistance
(4) A stabilizer with some plasticizing action in varnishes

Other uses may present themselves when you study the table of physical and chemical properties included here. For example, ortho-Nitrobiphenyl may impart fungicidal properties to the compositions of which it becomes a part.

Samples and technical information will be sent promptly on request. Contact the nearest Monsanto Office, forward the coupon to: MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Charlotte, Birmingham, Cincinnati, Los Angeles, San Francisco, Seattle, Montreal, Toronto.

MONSANTO CHEMICALS
SERVING INDUSTRY...WHICH SERVES MANKIND

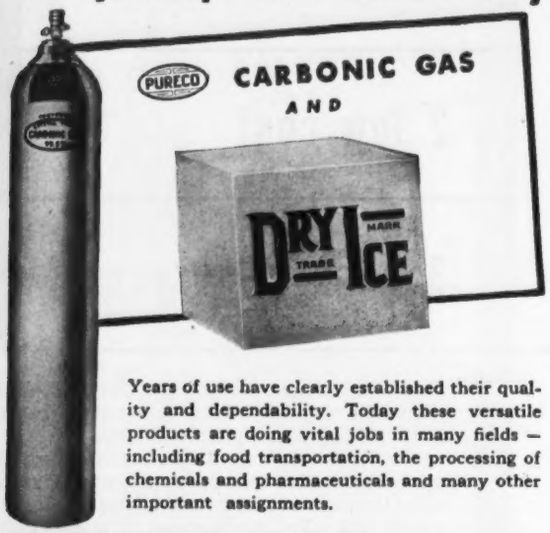
MONSANTO CHEMICAL COMPANY
Organic Chemicals Division
1700 South Second Street, St. Louis 4, Missouri

Please send, without cost or obligation, samples of ortho-Nitrobiphenyl, technical.

*Name*_____
*Company*_____
*Street*_____
*City*_____ *Zone*____ *State*____

When inquiring specify CP A3888 . . . see information request blank, pgs. 2-3

STAND-OUTS
in quality and versatility



Years of use have clearly established their quality and dependability. Today these versatile products are doing vital jobs in many fields — including food transportation, the processing of chemicals and pharmaceuticals and many other important assignments.

PURE CARBONIC, INCORPORATED
General Offices: 60 E. 42nd St., New York 17, N. Y.
NATION-WIDE SERVICE — DISTRIBUTING STATIONS IN PRINCIPAL CITIES

When inquiring specify CP A3889 — see handy form pages 2-3

MATERIALS

Use of Enzymes in Rendering Fat

A natural process at lower temperatures; enzymes destroyed at end of rendering period

Uses — The application of proteolytic enzymes to the rendering of fats from animal tissues has given noteworthy results.

Features — Yields of fat have been increased by an average amount of 7.5% over conventional methods. Cooking times have been reduced from 30% to as much as 70% of those formerly used.

Description — In discussion of how these results have been accomplished the organization furnishing these enzymes explains how they have been extracted in laboratories from materials containing them and that they are obtainable in concentrated solutions where they are more quickly available and thus ready to go to work at once for the user. Laboratory research has shown the proper methods to follow in the use of proteolytic enzymes in rendering. The breaking down of cell walls and the melting of fats are not the only effects of heat in the rendering process. Heat together with steam causes the development of free fat acids in the fat and thus lowers the smoke point of the resulting fat, an undesirable result. Heat alone does not break down the fat containing tissues to the point where maximum yields are obtained. Detailed information concerning — "Protease L — 177" on request.

PAUL LEWIS LABORATORIES, INC., Dept. CP, 918 North 4th St., Milwaukee 3, Wis.

When inquiring specify CP A3890 — see handy form pages 2-3

WHAT IS YOUR...

Plastic
ADHESIVE
Problem...



What are you combining with plastics? Felt, pape wood, metal, plastics, fabrics or leather, etc.? We' like to tackle your specific problem. We'd like to te samples. We may have the exact adhesive solution.

You can rely on National . . . a specialist for hal a century in all types of industrial adhesives and pioneer in the development of synthetic resin ad hesives . . . to solve any practical adhesive problem Submit your samples — NOW! 270 Madison Avenu New York 16, and principal cities.

National ADHESIVES

EVERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL US

When inquiring specify CP A3892 — see handy form pages 2-3

Introducing . . .

BE SQUARE *Microcrystalline* WAX

to the readers of Chemical Preview

Of course, to many members of the chemical and processing industries, famous Be Square Wax NEEDS no introduction . . . . . because they've found successful solutions to many perplexing processing and manufacturing problems through the use of Be Square Special Waxes.

To those who DON'T know the advantages of this fine processing material, we're going to try to tell you a part of its story in each issue of Chemical Preview.

Here — to begin with — are the outstanding properties which may fit its use to a solution of *your* problems —

HIGH MOISTURE VAPOR RESISTANCE
EXCELLENT ELECTRICAL AND ADHESIVE PROPERTIES
ODORLESS —— CHEMICALLY INERT —— TASTELESS

Write for our illustrated bulletin.

BARECO WAX COMPANY
BOX 2009, TULSA, OKLAHOMA — WIDENER BLDG., PHILADELPHIA 7, PA.

Samples available in black, white and amber.

When inquiring specify CP A3891 . . . see information request blank, pgs. 2-3

SLY DUST Collectors
A Paying Investment

Sly Dust Control Systems improve working conditions, eliminate health hazards, prolong life of machinery, reduce cleaning and maintenance costs and recover valuable materials. They are not expensive—in first cost, maintenance, operation; soon repay their cost. Ask for Bulletin 98 and tell us your problem.

5 SLY SUPERIORITIES

1. Greater filtering capacity — 2. Taut bags for better dust removal — 3. Bags more easily replaced — 4. Automatic control — 5. Simpler shaker mechanism saving operating and maintenance costs.

THE W. W. SLY MFG. CO.
4754 Train Avenue • Cleveland 2, Ohio

Sly Dust Collectors get all the dust by filtration through cloth. The Collector shown here filters silica dust out of 15,000 cu. ft. of air per minute.



When inquiring specify CP A3893 — see handy form pages 2-3

Stabilizer Permits Working Vinyl Resins at High Temperatures

Readily incorporated in the vinyl resin when it is worked in mill; gives clear films

Uses — This stabilizer was developed to prevent the discoloration and chemical breakdown of vinyl chloride and vinyl chloride-acetate copolymers when they are processed at high temperatures and exposed to light.

Features — Being a fluid it can be readily incorporated in the vinyl resin when it is worked on a mill or in a Banbury. It is also compatible and soluble in vinyl resin solutions and can be used in lacquers and other solutions based on vinyl resins.

Description — This stabilizer "V-1-N" permits the working of vinyl resins at high temperatures such as in the mill and calendars without decomposition of the resin and gives clear transparent films. The transparency of the film will depend on the thickness of the film and concentration of "V-1-N". For films .005 2 to 3% of Stabilizer "V-1-N" on the resin is suggested. An example of stabilizing action imparted by Stabilizer "V-1-N" can be shown as follows: 100 parts Vinyl-Chloride Acetate Polymer; 35 parts Dioctyl Phyhlate; 3 parts Stabilizer "V-1-N". The above is either milled or a solution made in solvents. Films of this composition are then heated to 160 degrees C. (320 degrees F.) for half an hour. The blank (no stabilizer) discolors while the sample with "V-1-N" remains clear. Physical properties: Viscosity is less than A (Gardner-Holt); specific gravity 1.03; pounds per gallon 8.58; color very pale straw; odor ketone.

ADVANCE SOLVENTS & CHEMICAL CORP., Dept CP, 245 5th Ave., New York 16, N. Y.

When inquiring specify CP A3894 — see handy form pages 2-3

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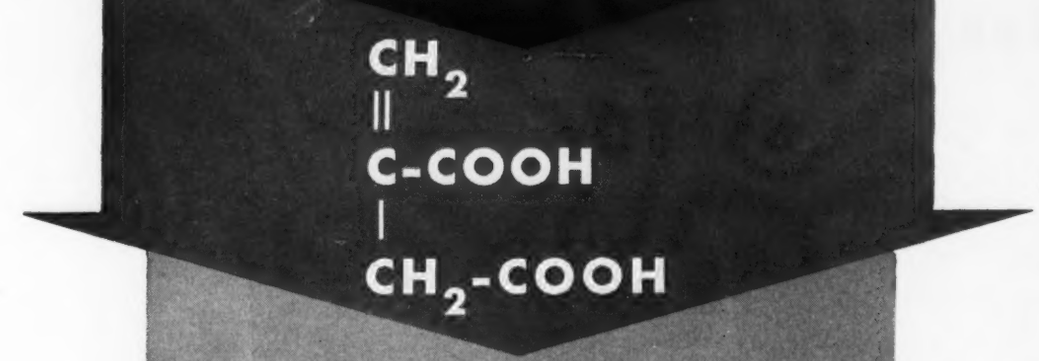
Textile Processing With Sodium Tetraphosphate

"Textile Processing with Quadrafos" is the title of a condensed guide to the use of Quadrafos in all types of textile wet processing. This new folder explains how to use Quadrafos, the company's brand of sodium tetraphosphate, in many applications in the textile industry. Copies may be obtained by requesting Bulletin No. 140. Brief technical information regarding the properties and characteristics of Quadrafos is given in the folder but its principal value for textile operators is the section devoted to directions for use of the product. This section is devoted to the various operations for processing woolens, cottons, rayons, linens and silks with specific, understandable information as to the steps in various operations where Quadrafos can be introduced to improve efficiency and achieve better results. A practical table of equivalents is shown for figuring the percentage of Quadrafos to use as related to the weight of the material to be processed. Quadrafos is anhydrous sodium tetraphosphate ($Na_6P_4O_{13}$) manufactured in granular and bead form. Since Quadrafos Granular can be added directly to the process where there is sufficient agitation, or predissolved in a pail, no stock solution is necessary. Where a stock solution is preferred, many mill operators use Quadrafos Beads, which dissolve rapidly in cold water without special dissolving equipment, forming an odorless, water-white solution, less alkaline than the best grades of neutral soap.

RUMFORD CHEMICAL WORKS, Dept. CP, Rumford 16, R. I.

When inquiring specify CP A3895 — see handy form pages 2-3

ITACONIC ACID



Molecular Weight . . .	**130.10**
Appearance	**White, crystalline, solid**
Melting Point	**167-168°C.**
Solubility in Water . . .	**At 20°C. a saturated solution contains 7.6 grams of Itaconic Acid per 100 grams of solution.**

This unsaturated dibasic acid, now available in research quantities, offers many possibilities as a raw material in the field of chemical industry.

It can be used as a raw material in the preparation of resins of various types.

Its esters can be polymerized to yield colorless, transparent plastics of varying characteristics, depending on the alcohol with which the acid is combined. They can also be co-polymerized with other monomers, opening a wide range of possibilities.

Its structure indicates that it might prove a useful raw material for the preparation of wetting agents.

It can be converted to citraconic or mesaconic acid and forms an anhydride.

Reduction yields methyl succinic acid which, in turn offers other possibilities as a raw material.

Itaconic Acid is not yet being prepared in commercial quantities, but limited amounts are available for laboratory research.

For samples and further information, please inquire of Chas. Pfizer & Co., Inc., 81 Maiden Lane, New York 7, N. Y.: 444 West Grand Ave., Chicago 10, Ill.

PFIZER *Manufacturing Chemists Since 1849*

ONE OF A SERIES OF PRODUCT PROBLEMS . . . SOLVED WITH A PHOSPHATE

HOW A

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PROBLEM

GOT A PROBLEM?

THINK *first* OF A

PHOSPHATE

from VICTOR

PARTIAL LIST OF VICTOR CHEMICALS

Acids . . . formic, metaphosphoric, oxalic, phosphoric, polyphosphoric.

Formates . . . aluminum, sodium, sodium boro-.

Metaphosphates . . . aluminum, ethyl.

Orthophosphates . . . ammonium, calcium, iron, magnesium, potassium, sodium.

Oxalates . . . calcium, sodium.

Phosphorus . . . (yellow).

Ferrophosphorus

Phosphorus Compounds . . . chlorides, pentoxide.

Pyrophosphates . . . calcium, sodium acid, sodium iron, tetrapotassium, tetrasodium.

Sulphates . . . magnesium, sodium aluminum.

VICTAWET 12

Description

Physical State . . . Liquid.

Color . . . Amber.

Specific Gravity . . . 1.121 (28° C).

pH . . . 4.7 (0.5% solution).

Analysis . . . 16.0% P_2O_5.

Surface Tension . . . 28.8 dynes/cm (0.2% solution at 29° C.)

Solubility . . . Insoluble in naphtha. Soluble in alcohols, acetone, toluene; milky solution in water; non-foaming.

Draves Test . . . 9.2 sec. at 0.6% conc.; 32 sec. at 0.2% conc. (in hard water).

Victor wetting agents have solved many problems where complete and rapid penetration is necessary. During the war years, difficulties encountered in the package dyeing of nylon cakes proved to be a serious bottleneck. Because of imperfect penetration, the nylon cakes were dyed in uneven and erratic shades. It was often necessary to unwind the yarn into skeins, re-dye, and then rewind the nylon. Any skeins which became snarled, meant a serious loss. Attempts to use ordinary wetting agents produced excessive foaming and did not solve the penetration problem.

Victor laboratories investigated the problem, and tests using many other well known wetting agents were conducted without success. Then a new Victor surface-active agent, Victawet 12, was tried. The results were so satisfactory that a series of plant runs in Franklin machines were made. The one pound nylon cakes showed thorough penetration of dyes with even, level shades. Additional runs proved Victawet 12 to be compatible with both acid and chrome dyes. The non-foaming characteristics of Victawet 12 speeded up the operation and it proved to be an excellent dye carrier as well as a penetrant.

Many other penetration problems have been solved with Victor surface-active agents. If you have a problem, think first of a phosphate from Victor.

VICTOR CHEMICAL WORKS

HEADQUARTERS FOR PHOSPHATES • FORMATES • OXALATES

141 W. Jackson Boulevard, Chicago 4, Ill.

NEW YORK, N. Y.; KANSAS CITY, MO.; ST. LOUIS, MO.; NASHVILLE, TENN.; GREENSBORO, N. C. PLANTS: NASHVILLE, TENN.; MT. PLEASANT, TENN.; CHICAGO HEIGHTS, ILL.

When inquiring specify CP A3896 . . . see information request blank, pgs. 2-3

Pre-Catalyzed Low-Cost Urea Resin for Hot Press Plywood

Permits high extension with flour-permitting glue line costs as low as soybean and vegetable glues; readily dispersible in water

Uses — This recently developed pre-catalyzed urea-formaldehyde resin for hot press plywood permitting high extension with flour provides glue line costs as low as soybean and vegetable glues.

Features — Known as Uformite 501, the resin eliminates the troublesome factor of adjusting the type and amount of catalyst necessary to accommodate the various degrees of flour extension.

Description — The resin is water resistant and insures an accurate and adequate catalyst ratio with a one component adhesive. The pH of the cured film is 4.0 or higher. The resin is a tan colored, free-flowing powder and is readily dispersible in water. The catalyst content of the resin provides adequate cure in both unextended and highly extended hot pressing mixtures. No additional catalyst is required, nor should any be added in the mixing process. Low gluten wheat flours are preferred from the standpoint of ease of mixing and smoothness of resulting mixture. Advance tests should be made with any flour to determine the exact water content required to provide the most spreadable mixture. In the case of flour extended formulations all of the water is run into the mixer first. All of the flour is added next, and the mix stirred to a smooth, heavy, dough. The Uformite 501 is added as a final step, and the complete batch stirred to a uniform, smooth consistency. It will be observed that as the resin is stirred in, the consistency of the batch thins out appreciably. The mixing procedure for unextended mixes is somewhat different. In this approximately 20 pounds of water is first run into the mixer, 70 pounds of the resin is added with stirring, and after the dispersion has become smooth the remaining 7 pounds of water is added. The moisture content of veneers is not a critical factor with this resin. The minimum spread permissible depends on the texture and density of the veneers as well as on the degree of extension, and advance tests should be made to establish the optimum basis. The range for tight cut birch if of the order of 30 to 40 pounds of liquid mixture per 1,000 square feet of joint, in which the higher ratios apply to the more liberal extensions. For low density, loose cut species, the range may be from 40 to 50 pounds with the same proviso of extensions. It is also true that unextended and low extended mixtures allow lower spreads than do highly extended mixtures. Single spreading, on one side of each mating surface, is common practice.

For an unextended Uformite mix a moderate delay between spreading and pressing is suggested. In the case of highly extended mixes the time between spreading and pressing should be as short as possible. Pressure requirements will depend on the species and uniformity of veneer thicknesses. From 150 to 200 pounds per square inch for softer woods and 200 to 250 pounds for maple and birch are adequate. Slight compression is desirable, and the softest layer in the assembly will control the allowable pressure. Most users prefer to solid pile or "bulk down" the hot plywood, using a solid, even base platform on the factory truck. The continued heat will add to the strength of the bond, and the stock can be dimensioned the following day. Some prefer to stick the stock for cooling and others find a quick spray desirable for subsequent gluing. Uformite-

bonded plywood should not be dipped. In any event, it should be well weighted down during cooling. Detailed information on Uformite 501 and its applications on request.

RESINOUS PRODUCTS & CHEMICAL CO., Dept. CP, Philadelphia, Pa.

When inquiring specify CP A3897 — see handy form pages 2-3

★

Liquid Non-Ionic Emulsifier For Preparing DDT Emulsions

Simple procedure; requires minimum effort and equipment; commercially available

Uses — This liquid non-ionic emulsifier — Nonaethylene Glyco Mono Oleate S 725 is for preparation of DDT emulsions. Excellent emulsions are obtained on an economical basis.

Features — The procedure is simple and requires a minimum of effort and equipment.

Description — The amount of DDT required to give the desired concentration is dissolved in a suitable amount of a solvent such as Xylol, etc., and about 10% of the liquid S 725 is added to the DDT solvent solution, with which it is readily miscible. This DDT solvent concentrate is then added to the desired amount of water when and as needed, whereupon it forms excellent emulsions with little or no agitation. A typical example of such a DDT emulsion calls for the use of 30 pounds of DDT powder which is dissolved in 90 pounds of Xylol, after which 10 pounds of Nonaethylene Glyco Mono Oleate S 725 is added. This basic concentrate is added to about three times its volume of water with which it rapidly emulsifies with a minimum of stirring. Nonaethylene Glycol Mono Oleate S 725 is available in commercial quantities.

GLYCO PRODUCTS CO., INC., Dept. CP, 26 Court St., Brooklyn 2, N. Y.

When inquiring specify CP A3898 — see handy form pages 2-3

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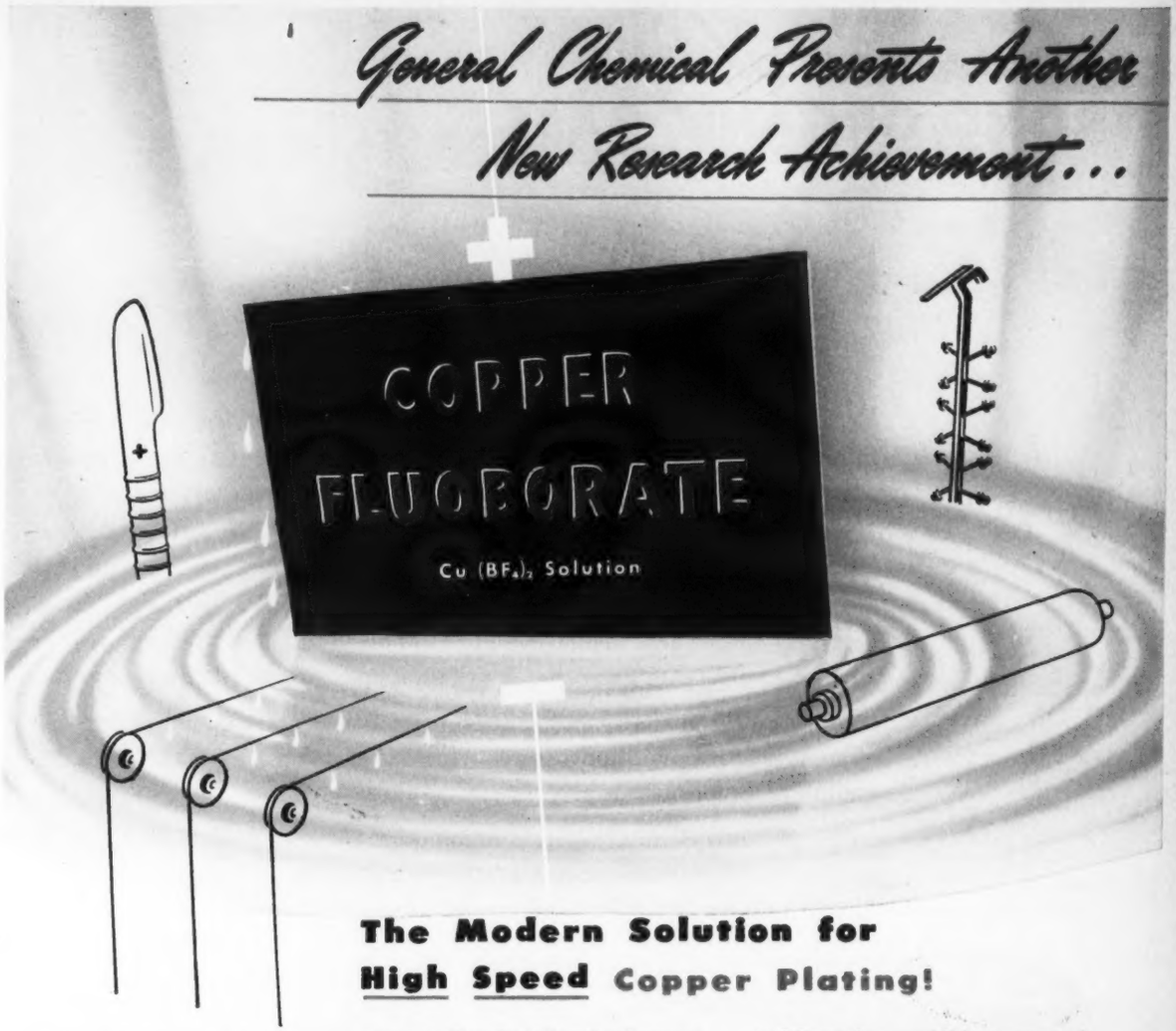
New Plasticizer Useful in Vinyl Resin Solution Coatings; Molded Compositions

"Flexol" Plasticizer TOF (Trioctyl phosphate) a new and effective plasticizer now available in limited quantities is described in a technical bulletin. Tank-car quantities will be obtainable later this year upon completion of a plant now under construction. This versatile plasticizer develops four important properties in plasticized compositions — excellent low-temperature flexibility, minimum change in flexibility over a wide temperature range, high resistance to water extraction, and low volatile loss. "Flexol" Plasticizer TOF is compatible with vinyl chloride, vinyl chloride-acetate and vinyl butyral resins, and the principal types of synthetic rubber. It is also compatible with ethyl cellulose and cellulose nitrate. "Flexol" Plasticizer TOF is useful in vinyl resin solution coatings as well as molded, calendered, or extruded compositions. It is especially effective in spreader and calender coatings for cloth where pliability and good drape are desired. Technical information on "Flexol" Plasticizer TOF may be obtained in Form 6159.

CARBIDE & CARBON CHEMICALS CORP., Dept. CP, 30 E. 42nd St., New York 17, N. Y.

When inquiring specify CP A3899 — see handy form pages 2-3

General Chemical Presents Another New Research Achievement...



The Modern Solution for High Speed Copper Plating!

General Chemical Fluorine Research leads again with another chemical of progress for the electroplating industry . . . Now, *Copper Fluoborate* . . . a concentrated solution that deposits copper at a higher rate than *any other known acid bath!*

Moreover, this superior plating chemical produces semi-bright, fine grained and ductile coatings, as well as plates out heavy deposits when desired. It requires no addition agents and offers unusual simplicity of control.

Total its outstanding advantages. Consider what they can mean to you as an electrotyper, gravure printer, producer of composite copper-nickel coatings, or manufacturer of other copper-clad products that must be plated at the fastest rate consistent with quality work. Then—try General's Copper Fluoborate for your plating!

FIRST IN FLUORIDES . . . Copper Fluoborate is one of many General Chemical Metal Fluoborate Concentrate Solutions now available to Industry in commercial or experimental quantities.

For technical data . . . trial samples . . . or other helpful information on this or other products below, contact General Chemical Company Fluorine Division, 40 Rector Street, New York 6, N. Y. or the nearest General Chemical Sales and Technical Service Office below.

GENERAL CHEMICAL METAL FLUOBORATE SOLUTIONS

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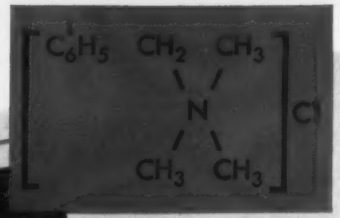
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In Wisconsin: General Chemical Wisconsin Corp., Milwaukee, Wis.

In Canada: The Nichols Chemical Company, Limited
Montreal • Toronto • Vancouver

When inquiring specify CP A3900 . . . see information request blank, pgs. 2-3

Source of a STRONG ORGANIC BASE . . .



Benzyltrimethylammonium Chloride

When an inorganic alkali is added to Benzyltrimethylammonium Chloride in aqueous solution, Benzyltrimethylammonium Hydroxide is formed. This compound is one of the strongest organic bases and a powerful catalyst for many organic reactions.

The anhydrous chloride is heat-stable below approximately 135C—but above this temperature decomposition begins with the formation of benzyl chloride and trimethylamine. The hydroxide decomposes in aqueous solutions at somewhat lower temperatures than the chloride.

We recommend that it be investigated for its reaction possibilities—as an analytical reagent, and for the synthesis of other useful materials including pharmaceuticals and textile specialties.

Can you use Benzyltrimethylammonium Chloride? It is available in limited commercial quantities. Write for a sample.

CSC

BENZYLTRIMETHYLAMMONIUM CHLORIDE IN 60%-62% AQUEOUS SOLUTION

PROPERTIES	
Molecular Weight	185.7
Specific Gravity (20 C/20 C)	1.07
Refractive Index (20 C)	1.472
Freezing Point (C)	<—50

SOLUBILITIES (g salt per 100 g solvent)			
Water	411	Butyl Lactate	20.0
Ethanol, 95%	103.5	Ethyl Ether	Insoluble
Butanol CSC	32.7	Petroleum Ether	Insoluble
Dibutyl Phthalate	0.1	Benzene	Insoluble
Tributyl Phosphate	0.1	Ethyl Acetate	Insoluble

COMMERCIAL SOLVENTS *Corporation*
17 East 42nd Street, New York 17, N. Y.

When inquiring specify CP A3901 . . . see information request blank, pgs. 2-3

MATERIALS

Immersion Color Rustproofing

Coats odd shaped parts; aids identification

Uses — This chemical immersion process imparts color to "Parkerized" iron and steel surfaces and increases corrosion resistance of the coating.

Features — Only simple equipment in addition to the "Parkerizing" process is needed and practically no extra labor is involved. The same drums or baskets used for the "Parkerizing" can be carried through the color treatment tank for the two to six minute immersion. Complicated shapes and parts with threaded members and holes are coated as well as flat surfaces. The color coating results from chemical reaction and is uniform.

Description — Color "Parkerizing" is a complex phosphate coating, integral with the metal surface, insoluble in water and does not smudge, chip or peel. It retards the spread of corrosion from abraded areas. It is available in gray, olive drab, blue purple and green. Excepting the gray, some fading due to sun exposure does occur. This does not lessen the corrosion resistance of the coating. The color finish has value for assembly identification. Salt spray tests indicate the effectiveness of this color rustproofing.

PARKER RUST PROOF CO., Dept. CP, Detroit, Mich.

When inquiring specify CP A3902 — see handy form pages 2-3

★

Booklet Lists Five DDT Products

Five DDT products are listed in colorful pocket size folder. These are: (1) Penco DB-50, a specially compounded dry powdered dust base containing 50% DDT. This is designed for use by insecticide manufacturers in the formulation of finished dusts for agricultural and household purposes. (2) Penco WB-50, a micronized powder containing 50% DDT and certain wetting agents which will mix readily with water. It is particularly desirable as an agricultural spray due to its particular particle size. (3) Penco Solvent Concentrate for use by insecticide manufacturers who do not desire to work from technical DDT. It can be used for the manufacture of insect sprays. (4) Penco Cattle Spray — a dry wettable powder stable in water suspensions containing 50% DDT and suitable quantities of wetting and sticking agents and which may be used as a livestock dip. Penco DDT-Technical, a fine to medium white granulated powder, with a setting point of 89 degrees C. It is for manufacturers who make their own formulations of DDT concentrates and finished products.

PENNSYLVANIA SALT MFG. CO., Dept. CP, 1000 Widener Bldg., Philadelphia 7, Pa.

When inquiring specify CP A3903 — see handy form pages 2-3

★

Pour Point Depressant for Wax Base Lubricating Oils

Lowers pour point of many oils effectively and retains reduced pour point under cyclic temperature changes

Uses — This new pour point depressant for wax-base lubricating oils is known as Acryloid 150. The new material not only lowers the pour point of many oils effectively, but it retains the reduced pour point under cyclic temperature changes. Paraffin-base motor oils in the SAE-10 and SAE-20 range which show a pronounced tendency to revert to their original pour points with some

additives, are effectively stabilized with Acryloid 150. Stable pour points as much as 40° or 50° F below the original pour point are readily obtained.

Features — In addition to its unique characteristics as a pour point depressant, Acryloid 150 also exhibits marked effectiveness as a viscosity index improver. Thus it is possible to raise the viscosity index appreciably and at the same time effectively lower the pour points with the addition of this one material. The refiner may, therefore, cross-brand his oils, producing an oil which will meet both SAE 10-W and SAE-20 specifications.

Description — Used in quantities of about 1%, Acryloid 150 is economical as well as effective. It is readily blended with mineral oils by any of the commonly used methods. Since the material is supplied as a fairly viscous product it is desirable either to heat the Acryloid to about 150° F before adding, or to heat the entire blend after the addition of the depressant. Mixing is readily accomplished by circulating pumps or paddle stirrers. Paraffin-base motor oils produced without special treatment solidify under ordinary winter temperatures and have long been troublesome in the motor oil industry. Motorists generally have been unaware of this fact because the oil has been treated prior to distribution to lessen the tendency. Even so, the oil handlers have often encountered solidified oils — oils in which the wax content has crystallized out of solution and completely occluded the liquid portion in the wax crystal matrices. An obvious solution has been to remove the wax, thereby making the solidification impossible. This is often done, but the process is costly and wasteful in that the production yield is reduced by the amount of the wax content — at times as high as 20%. Furthermore, the wax is a useful component of the oil and its removal lessens the stability of the lubricant in the engine. In an attempt to avoid oil solidification without de-waxing, depressants have been developed — materials which, added to the oil, serve to lower the point at which solidification takes place, thereby avoiding difficulty. This method has been effective in some circumstances, but until the advent of Acryloid 150 has failed to give full satisfaction under conditions where the temperature fluctuates between the natural and the depressed pour points — that is, under cyclic temperature changes. Acryloid 150 has been extensively evaluated in various laboratory tests, in single cylinder engine tests, in the standard 36-hour Chevrolet oxidation and bearing corrosion tests and in fleet operations. In all of these tests it has established its effectiveness. A wide range of domestic oils has been investigated, and although individual tests are required to determine just how any particular oil will react, the following table shows the results obtained with a representative mineral oil:

	Oil	*Oil* + 1.25% *Acryloid* 150
Viscosity SUS at 100° F	152	172
at 210° F	44	47
Viscosity Index	114	130
Stable Pour Point °F	+20	—25
Flash Point °F	420	420
Neut. No.	0.08	0.08
Conradson Carbon	0.12	0.12

The cost of the treatment is low, particularly when the value of the improvement in viscosity index and the increased yield resulting from the lowering of the de-waxing requirements is considered. With Acryloid 150 it is often possible to secure both pour point depression and viscosity index improvement for the cost of a single treatment.

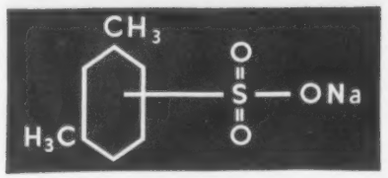
ROHM & HAAS CO., Dept. CP, Philadelphia, Pa.

When inquiring specify CP A3904 — see handy form pages 2-3

WYANDOTTE SODIUM XYLENESULFONATE

FOR HYDROTROPIC SOLUTIONS · a chemical with* U.C.P.

INCREASES THE SOLUBILITY OF MANY ORGANIC AND INORGANIC COMPOUNDS IN AQUEOUS SYSTEMS



MOLECULAR WEIGHT 208

Sodium xylenesulfonate is available from semi-commercial production. Address inquiries for samples and further information to the Development Department. Wyandotte's technical staff stands ready to aid you.

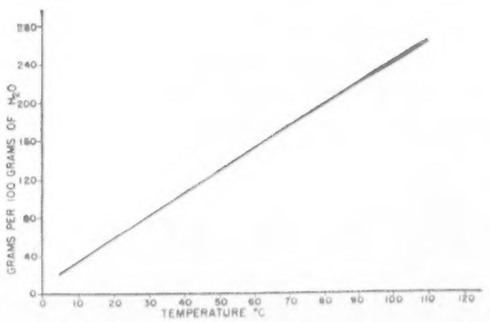
HYDROTROPIC PROPERTIES

Solutions of sodium xylenesulfonate have the property of "salting in" or increasing the solubility of many slightly soluble chemicals in aqueous systems. This unique property makes sodium xylenesulfonate attractive for numerous processes employed in the chemical industry. It is suggested for solvent extraction, speeding up chemical reactions, lowering of the reaction temperatures required for certain reactions, as a mutual solvent for increasing the solubility of organic compounds in aqueous systems, speeding up two-phase (liquid-liquid) organic reactions, for purifying organics, as a solvent for lignin and pentosans, and for increasing the water solubility of many sparingly soluble inorganic salts.

PHYSICAL AND CHEMICAL PROPERTIES

Wyandotte sodium xylenesulfonate is available as an aqueous solution in which the approximately 40% solids are primarily the sodium sulfonate derivatives of the 1,3-isomer with small amounts of the derivatives of the 1,2-isomer. The solution is straw colored, slightly alkaline (pH at 25°C,—7.5 to 8.5), has a faint sweet odor and contains less than 2% inorganic salts. Solutions of sodium xylenesulfonate exhibit moderate wetting properties.

SOLUBILITY OF THE ANHYDROUS SALT IN WATER



*** U.C.P. means Undiscovered Commercial Potential**

Wyandotte
REG. U. S. PAT. OFF.

OFFICES IN PRINCIPAL CITIES

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN

Soda Ash • Caustic Soda • Bicarbonate of Soda Calcium Carbonate • Calcium Chloride Chlorine • Hydrogen • Sodium Zincates Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

When inquiring specify CP A3905 . . . see information request blank, pgs. 2-3



In Gardening It's

A GREEN THUMB

You've heard of the chap with a "green thumb." Everything he plants flourishes. Of course, what he really has is an unusual combination of knowledge, experience, and great enthusiasm for what he's doing.

Call it "green thumb" . . . call it knowledge . . . call it "feeling" for the job . . . it's a quality that every Stephens-Adamson engineer brings to Material Handling problems.

It comes to him from long association with a group of progressive conveyor engineers . . . with a company that for 45 years has led the field with new units and new methods.

This "feeling" for the job is supplemented by a complete line of conveyors and accessories from which S-A engineers can make unrestricted choice—the right equipment . . . to convey the right volume . . . to the right place . . . at the lowest cost per ton over the long term.

If you want the man with the "green thumb" in the bulk material handling field, talk to an S-A engineer.



STEPHEN S-A ADAMSON
MFG. CO.

11 RIDGEWAY AVENUE, AURORA, ILLINOIS — LOS ANGELES, CALIF. • BELLEVILLE, ONT.

Designers and Manufacturers of All Types of
BULK MATERIAL HANDLING EQUIPMENT

When inquiring specify CP A3906 . . . see information request blank, pgs. 2-3

MATERIALS

New Hard Resin For Varnishes And Printing Inks

Produces varnishes of normal viscosity without prebodying slow polymerizing oils

Uses — This new hard resin is a modified phenolic particularly suitable for use with unbodied linseed or dehydrated castor oil. It is used in many types of printing inks as well as soft oil varnishes.

Features — Chief among the unusual properties exhibited by this resin is ability to produce varnishes of normal viscosity without the need for prebodying the slow polymerizing oils currently used in varnish manufacture. Varnishes made with this resin are obtainable in light colors, show less tendency to yellow and are faster drying than many other modified phenolic varnishes. The need for prebodying the oils is eliminated and the time and expense involved in the preliminary process is saved. The actual cooking time of the varnish is equal to or only slightly greater than the time required to cook conventional modified resins with pre-bodied oils. For example 25-35 gallon length unbodied linseed Arochem 333 varnishes can be cooked to conventional viscosity with only one hour holding time at top temperature (580 degrees F), whereas the same holding time is required to achieve equivalent viscosity with typical modified phenolics and "Z" viscosity linseed. Still shorter cooking cycles can be employed with unbodied dehydrated castor oil.

Description — Arochem 333 can be used with all slow-polymerizing oils, but it is not recommended with a straight tung or oiticica oils or with kettles bodied oils with viscosities above Q — R (Gardner-Holdt). Soft oil varnishes showing less tendency to after-yellow are obtainable. They possess alkali and water resistance that compares most favorably with that of other widely used phenolics. The fast bodying properties of this resin make it particularly valuable to the gloss ink manufacturer. The fast drying and color retentive qualities add to its usefulness. The exceptionally large polymer size of this resin yields ink vehicles of maximum hold-out. Specifications — Acid Number: 25-45; Melting Point (Mercury Method): 165-175° C; Color (G. H. 1933-50% cut in Toluol) 10-12; Specific Gravity: 1.1. Solubility — completely soluble in coal-tar solvents and medium and low viscosity drying oils; partially soluble in petroleum solvents. Insoluble in ethyl alcohol.

U. S. INDUSTRIAL CHEMICALS, INC., Dept. CP, 60 East 42nd St., New York 17, N. Y.

When inquiring specify CP A3907 — see handy form pages 2-3

★

Synthetic Tanning Chemical

Meets shortage of domestic natural product; displays many superior qualities

Uses — This synthetic product will find wide uses in tanning operations, particularly for re-tanning chrome tanned shoe leathers.

Features — Imparts to sole leather a fine, smooth grain, as well as the desirable qualities of tightness, firmness, pliability and excellent resistance to abrasion, water and wear. In addition to properties already mentioned, this product — "Exan" — permits the production of light colored leathers more readily and makes possible greater speed in tanning. An important attribute is the ability to produce lightfast leather.

Description — This synthetic tanning chemical was de-

veloped to meet war emergencies, including possible cutting off of foreign substitute natural products. The dwindling supply of the domestic natural product is nearing exhaustion. This is of course due to the chestnut tree blight. This organization's research chemists cooperated with those of the University of Cincinnati's Department of Leather Research, the Moore Laboratory at Buffalo, N. Y. and the American Oak Leather Co. to produce — "Exan". It was largely a matter of examining the complicated molecular structure of natural extracts and then creating a new product. "Exan" is in production in commercial quantities at the company's Merrimac Division, Everett, Mass.

MONSANTO CHEMICAL CO., Dept. CP, Saint Louis 4, Mo.

When inquiring specify CP A3908 — see handy form pages 2-3

★

Algin Product Used in Ointments, Toothpastes, Oil Emulsions

Efficient thickening, stabilizing, suspending agent

Uses — This algin product is a water soluble, highly refined edible, colloidal, carbohydrate compound used in the pharmaceutical industry and others requiring a purified, uniform colloid. Chemically it is the sodium salt of polymerized d — mannuronic acid, a sugar acid extracted from a giant kelp plant of the Pacific Ocean. It is used in the industries mentioned because of its hydrophilic colloidal properties which make it an efficient thickening, stabilizing and suspending agent. Through varying the percentage in solution any desired viscosity can be obtained. Thus, a 1 % by weight water solution has a viscosity of approximately 700 cp, a 2 % has 8000 cp and a 3 % has 21,000. Some of the pharmaceutical uses are in toothpaste, lubricating jelly, ointments such as those of sulphathiazol and tannic acid and mineral oil emulsions. Also in brushless shave creams, cream shampoos, and hand lotions.

Description — This algin product — "Kelgin" dissolves in either cold or hot water upon stirring for about thirty minutes to give an essentially natural solution. To prevent lumping of the "Kelgin" upon addition of the water, it is added gradually while agitating the solution. Other means of accomplishing this are to mix at high speed, blending with an inert material to disperse the "Kelgin" or wetting with small amounts of glycerine or alcohol. This algin product functions satisfactorily under acidic or alkaline conditions within the pH range of about 4 — 10. It is compatible with glycerine, ethylene, glycol, wetting agents, alkali metal and ammonium compounds, some acids such as acetic, carbolic, tannic and boric, and with dilute (up to about 25%) solutions of eater miscible alcohols. Ions of the alkaline earth metals and the various heavy metals will thicken or gelatanize algin solutions when present in low concentrations, while in high concentrations they will precipitate it. Thus, through the use of such salts as calcium sulfate, calcium gluconate and calcium tartrate with algin, it is possible to form semimucilages and gels of various strengths. Most inorganic and some organic acids coagulate algin from solution when the pH is lowered below about 3.5. In some applications it is advisable to use a preservative such as formaldehyde, phenol or substituted phenols, or the methyl, propyk or butyl ester of p—hydroxybenzoic acid.

KELCO CO., Dept. CP, 75 East Wacker Drive, Chicago 1, Ill.

When inquiring specify CP A3909 — see handy form pages 2-3





If it has to do with DDT, work it out with DU PONT!

MANUFACTURERS who have been thinking of using DDT in their products are invited to come to Du Pont for technical service. Experience gained as a major supplier of DDT to the armed forces may be of considerable value to you.

That experience plus Du Pont's continuing laboratory and field studies make it possible to supply you with DDT Technical that always measures up to rigid requirements.

Because of the method by which it is manufactured, Du Pont DDT Technical is uniformly dependable. It works well in dry preparations and dissolves quickly, forming clear solutions.

To help you formulate DDT preparations that have a sound basis for commercial use, our complete facilities are available. E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington 98, Delaware.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

DU PONT
DDT *Technical*

When inquiring specify CP A3910 . . . see information request blank, pgs. 2-3



Greatly increased application of industrial petroleum naphthas has created the need for a compilation of the vast amount of scattered information on their many uses.

Gulf, as a leading manufacturer of quality industrial petroleum naphthas, has prepared an attractive 60-page booklet compiling under one cover the more important factors that enter into the use of petroleum naphthas in each of the diverse industries employing them in the largest amounts.

Copies of this interesting booklet are available to all users of petroleum naphthas. To obtain *your* copy, send in the coupon.

GULF OIL CORP. · GULF REFINING CO.

Gulf Building *Pittsburgh, Pa.*

GULF

Gulf Oil Corporation · Gulf Refining Company
3800 Gulf Building, Pittsburgh 30, Pa.

Please send me, without obligation, a copy of your 60-page booklet, "Industrial Petroleum Naphthas."

Name.....

Company.....

Title.....

Address.....

X-1427

When inquiring specify CP A3911 . . . see information request blank, pgs. 2-3

MATERIALS

Finely Divided Soya Protein Powder For Industrial Applications

Boxboard, wallboard coating, adhesive, wax compound and water thinned paint applications

Uses — The suggested uses of this product include: accoustical wallboard coating, boxboard coating, linoleum coating; also wallboard and wallpaper. Others are adhesive and glue, composition block binder, emulsifier for asphalt, oils and wax compounds and water thinned paints.
Features — Viscosity of "Procase" solutions increases upon standing, but drops rapidly and sharply when agitated. This characteristic is very beneficial in keeping pigments and clays in suspension, which is not possible with non-thixotropic materials such as casein, etc.
Description — "Procase" is manufactured at relatively low temperatures by a continuous solvent oil extraction process which prevents harmful denaturization of the proteins and reduces fatty substances to less than 1%. Soluble in alkaline solutions. Degree of solubility increases as pH is raised to 10.5 and above. React with alum, aluminum acetate and aluminum triformate to insolubilize.

AVERAGE ANALYSIS

Protein	52.95%	Fat	.65%
Fibre	2.69%	Moisture	8.46%
*Carbohydrates	29.11%	Color	White
Ash	6.15%	pH	6.55%
Particle Size	99.50%	thru 300 mesh screen	

CENTRAL SOYA CO., INC., (Products Div.) Dept CP, Fort Wayne 2, Ind.

When inquiring specify CP A3912 — see handy form pages 2-3

★

Low Cost Plasticizer for Buna N

Also for Vinyl Buna N mixes; fine aging qualities

Uses — This product has been introduced to meet the needs of those requiring a low-cost primary plasticizer effective for Buna N.
Features — An important advantage of the product is its aging characteristics. In typical recipes sixty per cent of the initial ultimate elongation is retained after 70 hours at 250° F.
Description — This plasticizer known as Plastolein X-348 is offered for commercial use and laboratory evaluation. No secondary plasticizer is required to keep down ultimate costs of the finished product because the total cost of X-348 is low. Although recipes containing X-348 are low in heat loss and exhibit low composition set; they are high in tensile strength, elasticity and recovery. In addition, such mixes are not susceptible to shrinkage in oil since Plastolein X-348 is oil insoluble.

EMERY INDUSTRIES, INC., Dept. CP, Cincinnati, Ohio.

When inquiring specify CP A3913 — see handy form pages 2-3

★

High-Test Calcium Hypochlorite

Contains minimum of 70% available chlorine; used in shrink resistance treatment of socks

Uses — This high-test calcium hypochlorite, previously requisitioned for war use as a bleach, germicide and dis-

infectant is now offered for commercial use in chemical and food processing industries. Solutions are used on coolers, bottles, bottle fillers, tanks. Spray and rinse operations in brewering and distilling industries are included in other applications.

Description — The product contains a minimum of 70 per cent available chlorine. It is being marketed under the name of "Pittchlor." Charts showing typical solutions and dilutions are available on request.

PITTSBURGH PLATE GLASS CO., (Columbia Chemicals Div.) Dept. CP, 5th & Bellefield, Pittsburgh 13, Pa.

When inquiring specify CP A3914 — see handy form pages 2-3

★

Self-Curing Neoprene Putty

Two-part cement used as patch for molded goods and as caulking and gasket cement

Uses — For patching parts of Neoprene-molded goods: also molded goods of Buna S. Hycar and Rubber may be repaired; as a caulking and gasket cement. In such applications a film of any desired thickness may be obtained.

Features — Plastic putty effect with smooth trowel application. Water, oil and flame resistance. Chemical resistance to: acetic acid, alcohols, aliphatic hydrocarbons, ammonia, calcium chloride, copper sulfate, fatty acids, hydro-chloric acid, oxalic acid, phenol, sodium hydroxide, sulfuric acid.

Description — N-800 Putty — A two-part self-curing Neoprene cement-putty viscosity. Black base (N1800 B) composed of compounded polymer and aromatic solvent. Specific gravity — 1.33; weight per gallon 11.11 Lbs.; solids content 85%. Dispersion of accelerator (N-800A) — specific gravity 3.14; weight per gallon 26.20 Lbs.; solids content 100%. Ratio: Mix one ounce by weight of N-800A with each pound of N-800B. Thinners: Toluol, Xylol, Ethyl Acetate. Equivalent Optimum Cures: 10 days at 68-70 degrees F. — 16 hours at 100-125 degrees F. — 60 minutes at 255-260 degrees F. The drying time of the mass is 15 to 45 minutes, dependent upon the room temperature (68-72 degrees F.) and bulk size of putty application. (Due to the activity of the accelerator portion, it should be added to the base slowly, and with constant agitation. Only a small portion should be prepared at a time, as the mixed cement will gel on standing and become of no value.

UNION BAY STATE CHEMICAL CO., Dept. CP, 50 Harvard St., Cambridge 42, Mass.

When inquiring specify CP A3915 — see handy form pages 2-3

★

White Plate Has 85% Reflectivity of Silver

A four page folder lists a number of specialized products for metal processing and finishing but is principally devoted to a presentation of "Rhodium," a brilliant white plate possessing lasting durability and tarnish resistance which can be applied at low costs. The folder describes "Rhodium" as having 85% the reflectivity of silver and as holding it indefinitely. The plates are resistant to corrosive action of acids or combinations of acids. Solutions are available for any white plating application. In addition to "Rhodium" the folder lists White Brass, Black Finishes for Steel, Brass, Copper, Silver, Gold Alloys, Wetting Agents and numerous other products in that category. Copies on request.

TECHNIC INC., Dept. CP, 39 Snow St., Providence, R. I.

When inquiring specify CP A3916 — see handy form pages 2-3



SHIPPERS! Your product can be seriously damaged by rust, corrosion, or mildew . . . because of "in-the-package" moisture. Avoid such damage. Include Jay Cee Silica Gel, the ideal drying agent, in the packages with your product.

Your container may be sealed "tight as a drum" against outside moisture. Yet, the vapor within can cause untold harm. Particularly, a slight drop in temperature can release dangerous moisture.

Jay Cee Silica Gel keeps the air in the package dry . . . adsorbs the vapor . . . prevents moisture damage. Jay Cee Silica Gel is a crystalline substance resembling rock salt in general appearance . . . chemically inert. Has amazing power to take up moisture without its particles changing in size or shape. Packed in 1, 2, 4, 8 oz. and 1 and 5 lb. bags. Used widely with shipments of metal parts, precision instruments, electronic equipment, dehydrated foods, fabrics, and chemicals.

no rust
no corrosion
in this container

The illustration shows Mr. Otto Mueller, packaging foreman, inspecting one of his Ampro Sound-On-Film Projectors sealed tightly within a representative moisture vapor-proof barrier, ready to be placed in a shipping carton. Packed within the barrier, with the Projector, are three small bags of Jay Cee Silica Gel . . . which adsorb "in-the-package" moisture and prevent damage from rust or corrosion.

(Cellophane packaging was used in this illustration as a substitute for the actual wrapping).

JAY CEE SILICA GEL

JOLIET CHEMICALS, LTD.
114 INDUSTRY AVENUE
JOLIET, ILLINOIS

When inquiring specify CP A3917 . . . see information request blank, pgs. 2-3

Process Adapted Agitation FOR

PRESSURE VESSELS Self-Supporting, Factory-Assembled and Permanently Aligned

IMPORTANT

SAVE MONEY AND TIME...

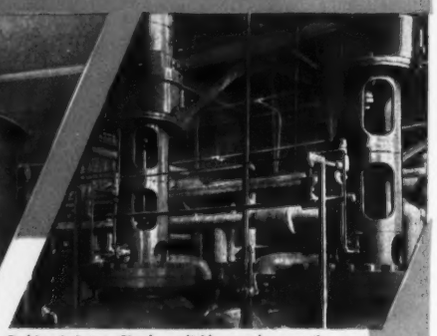
Note illustrations carefully "MIXCO" and "LIGHTNIN" Agitators offer the only complete line of self-supporting —nozzle mounting equipment. Nothing else to buy. No structural steel to design and make—any pipe fitter can attach to tank in a few minutes. Easily removable for use elsewhere. Turbines designed to assemble through small openings.



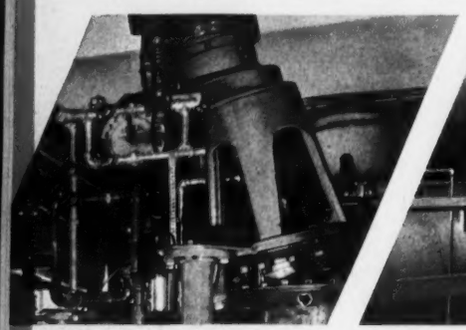
Nozzle mounting propeller-type agitator mounted in off-center position. Needs no baffles—permits freedom of head design. Sanitary construction—used in Blood Plasma production. Simplified installation—no external supports.



Simple side branch pipe adaptor provides support and closure combined for Agitator used under "no-head room" conditions. Imagine the difficulty of designing supports if the mixer had been furnished with drive, separate from the stuffing box.



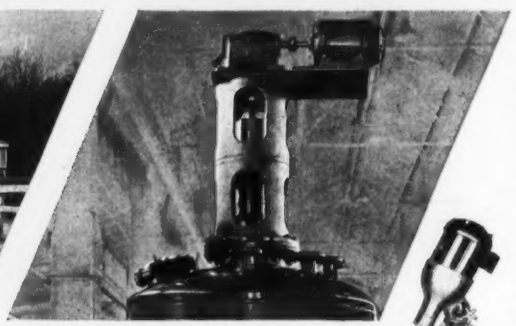
Turbine-Agitator. Simple, reliable nozzle mounting supports entire mixer without separate structural steel. Factory aligned—integral construction assures proper stuffing box performance on this difficult high pressure job.



Nozzle mounting agitator leaves more room for other fittings on vessel head. Note how structural steel supports would have complicated piping layout and increased head room, if mixer were not complete and integrally mounted.



For outdoor service, self-supporting, nozzle mounting agitators pay extra dividends in lower overall cost, lower maintenance and simplified, accessible installations.



Turbine-Agitator. Right-angle drive, complete and self-supported on tank nozzle. Prominent process vessel builder appreciates integral construction with stuffing box already aligned and unit ready to install. Note: designer has been able to locate all other fittings without interference with usual structural steel supports.

TOP ENTERING MIXERS

Where to use them. In problems involving mixing under pressure, vacuum, airtight, vapor proof and other similar conditions, a Top Entering *"LIGHTNIN"* or *"MIXCO"* Agitator—*properly engineered for the specific job* —is the answer. Because the operation takes place in a closed tank, the agitation must be fitted to the job with due consideration for all factors including tank size, viscosity of materials, results required, etc., etc.

"LIGHTNIN" and *"MIXCO"* Top Entering Agitators are available in ¼ to 50 H.P. direct or gear drive for agitating liquids up to 20,000 centipoises at mixing temperature. A wide variety of propellers and turbine type impellers are available to give maximum efficiency on various materials under a specific set of conditions and requirements.

The Basis of Our Recommendations

Twenty-five years of experience have resulted in an organization, research facilities and skill which qualify Mixing Equipment Company as a leading authority in the whole broad field of agitation. Mixing Equipment Company offers its services in the solution of any problem involving controlled recirculation of liquids to produce physical and chemical changes, as included in the following table:

Mixing Equipment Company Offers

Complete coverage of industrial areas with service for both individual user and engineers or equipment manufacturer.

Assumption of responsibility for selection of mixer size, types, performance, characteristics within limits of existing technology.

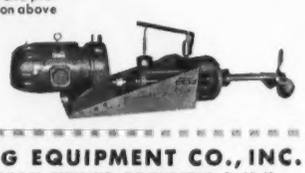
Blending Miscible Liquids	Mixing Immiscible Liquids	Crystal Size Control	Gas Absorption and Dispersion	Suspension of Solids	Heat Transfer
Simple Mixing of soluble liquids as in reducing concentration	Washing of Liquids Extraction Contacting Caustic Treating Emulsions	Precipitation Evaporation Systems	Hydrogenation Aeration Gas Scrubbing Chlorination Gas Washing	Slurries Slaking Lime Suspension of: filter aid, activated carbon, Fullers Earth, Crystals while dissolving	Stills Evaporators Reactor Vessels Heating Cooling

TOP ENTERING MIXERS: A wide range of sizes for large or small tanks— ¼ to 50 H.P. for vertical use on pressure or vacuum vessels. Integral mounting, all Impeller types, Radial Turbines and propellers. Illustration above for open tank.



PORTABLE MIXERS: ⅛ to 10 H.P. for rim attachments to open tanks. Gear and direct drives. Many exclusive conveniences. Off-center positioning. Extended bearing sealed against oil and grease leaks.

SIDE ENTERING MIXERS: 1 to 25 H.P. for horizontal use. Any size tank. Propeller type only. Many models and drives. In use on tanks up to 5,000,000 gallons capacity.



MIXING EQUIPMENT CO., INC.
1085 GARSON AVENUE, ROCHESTER 9, N. Y.

Please send me the literature checked:

- ☐ B-66 and B-76 Side Entering Mixers
- ☐ B-78—Top Entering Mixers
- ☐ B-75—Portable Mixers (Electric and Air Driven)
- ☐ B-77—Laboratory Mixers
- ☐ Mi-11—Operating Data Sheet

Name .....
Title .....
Company .....
Address .....

TOP ENTERING LIGHTNIN PORTABLE MIXCO SIDE ENTERING

MIXING EQUIPMENT CO., INC.
1085 Garson Avenue Rochester 9, N. Y.

Silver Brazing Flux is Water Thin at 800 Degrees F.

Flows through clearances as close as .001" no free fluorides; no objectionable fumes

Uses — This silver-brazing flux, known as "Nu-Braze Wonderflux No. 4", melts and forms a protective coating over the metal surfaces at 480 degrees F., well below the oxidation temperature of most metals. Thus, this flux eliminates oxides by preventing their formation.

Features — At 800 degrees F., the point where ordinary brazing fluxes first begin to melt, this flux is actually water-thin, and will readily flow through clearances as close as .001 inch. Possessing an exceptional thirst for oxides, this flux is especially effective on stainless steels. Another difficulty with the usual fluxes is the continuous effervescene which takes place during the entire heating cycle. After the water content leaves "Nu-Braze" at 212 degrees F there is no further effervescence. This quality makes this flux especially useful where brazing alloys are used in the form of powder, since this flux will not spatter the alloy powder away from the joint area.

Description — "Nu-Braze Wonderflux No. 4" has a pH of 5-6 which means that for all practical purposes it can be considered completely neutral. Thus, it can be painted on parts and allowed to remain for long periods without producing corrosion. Since it is non-hygroscopic, should some of the flux remain trapped in an inaccessible part of the joint, it would not pick up water at a later date and thus cause corrosion. Because it is water thin at its operating temperature, this flux is gently and completely eased into the joint by the molten brazing alloy, thereby eliminating the difficulty of flux inclusions in the brazed joint. After it is melted, this flux hardens to an extremely brittle glass which can usually be jarred from the brazed part. It is easily removed by either hot or cold water. This flux contains no free fluorides and does not release objectionable volumes of fumes. Because it is a neutral composition it is perfectly safe to handle and will not attack the skin. Complete information on "Nu-Braze Wonderflux No. 4" on request.

SHERMAN CO., Dept. CP, 197 Canal St., New York 13, N. Y.

When inquiring specify CP A3918
— see handy form pages 2-3

For more information on product at left, specify CP A3919 . . . see information request blank between pages 2-3.

Arc Welding Aid Compound

Used on all metals with any type electrode



Welding aid in 1 lb. jars

Uses — This new arc welding compound is designed to aid in instantaneously creating and maintaining a metallic welding arc where low currents and small-diameter electrodes are employed.

Description — This product has been introduced under the name of "Strike-Easy". It is easy to apply and can be used on any kind of metal with any type of electrode. This compound, which is in paste form is available in one pound glass jars completely ready for use. No mixing or other preparations required.

GENERAL ELECTRIC CO., Dept. CP, Schenectady, N. Y.

When inquiring specify CP A3920 — see handy form pages 2-3

★

Vinyl White Coating

One application roller coating; for food, cosmetic and similar containers; withstands food acids

Uses — As a one coat material with top resistance to food acids and fats; providing stability under any high and repeated baking temperatures. For lining containers for foodstuffs requiring pasteurization and sterilization. An efficient coating for use by container manufacturers serving cosmetic, food and other fields.

Features — This vinyl white coating is exceptionally high in solids — 52% or about twice that of conventional types. With many vinyl coatings used for the past several years which have been low in solids, the two coat applications have been costly. From the increased pigment, hiding power equal to that of two coats of conventional types is obtained. The greater vehicle content is responsible for the exceptionally high gloss and tough film surface as well as superior flowing qualities. Odorless and tasteless.

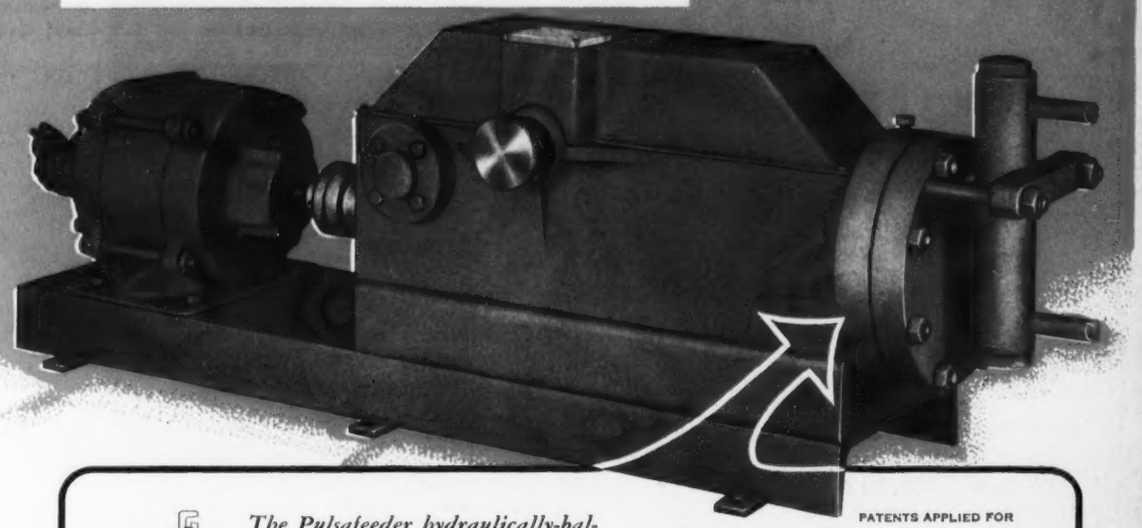
Description — This vinyl white is stabilized in the process of manufacture and will not disintegrate in contact with metals at elevated temperatures. Fine adhesion is obtained even when the material is applied directly to unsized black plate, electrolytic or hot dip tin. This, in addition to flexibility characteristics makes the coating very suitable for the exacting requirements of scrap work. The coating has fine original color and color retention and provides a durable base coat for multi-color lithography. Resistant to sterilization and processing, no failures developing after thirty minutes boiling water or three to four hours autoclaving at 15 pounds steam pressure, even in the presence of food fats or other contamination. Complete details on "Roxalin Vinyl White Coating on request.

ROXALIN FLEXIBLE FINISHES, INC., Dept. CP, Elizabeth, N. J.

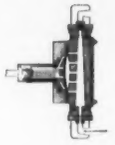
When inquiring specify CP A3921 — see handy form pages 2-3

FOR PRECISION CONTINUOUS BLENDING OF FLUIDS...

Wilson
PULSAFEEDER
Chemical Proportioning Pumps



PATENTS APPLIED FOR



The Pulsafeeder hydraulically-balanced diaphragm isolates pump from fluid being handled. Action of the piston results in like action of the diaphragm, imposes no pressure differential on the diaphragm itself.



The hydraulically-balanced diaphragm does it...

ACCURACY OF FLOW . . . PURITY OF PRODUCT

To assure absolute purity of product with the Wilson Pulsafeeder, it is necessary only to select materials, impervious to the fluid being handled, for Pulsafeeder head, valves and diaphragm. The diaphragm prevents contamination of product from piston, lubrication or packing. It also protects the pump from chemical attack by fluids being handled. Rate of flow is continuously adjustable by micrometer hand knob—*while machine is in operation*—from zero to full maximum. Models available for flow up to 800 gallons per hour, or against pressures up to 5000 lbs. per square inch. Write for description and specifications. *Process Equipment Division, Lapp Insulator Co., Inc., 169 Maple Street, LeRoy, N. Y.*

Lapp *Process Equipment*

LAPP CHEMICAL PORCELAIN VALVES • PIPE • RASCHIG RINGS...
WILSON PULSAFEEDER CHEMICAL PROPORTIONING PUMPS...

When inquiring specify CP A3922 . . . see information request blank, pgs. 2-3



FREE SAMPLES AND LITERATURE

SEND US, WITHOUT OBLIGATION:

☐ Samples of your Soapless Detergents

☐ Literature about Soapless Detergents

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Address_____

City_____ Zone____ State_____

By_____

We Make_____

No. 33

THE EMULSOL CORPORATION

59 EAST MADISON STREET · CHICAGO 2, ILLINOIS

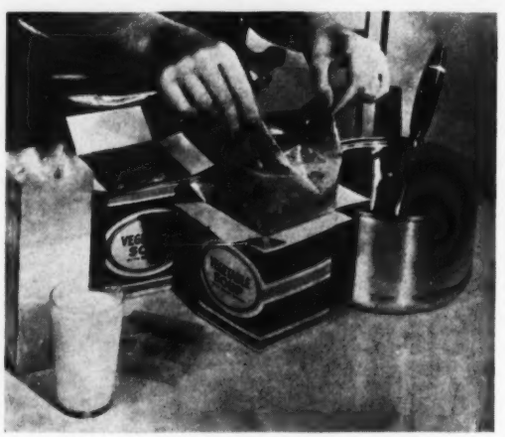
When inquiring specify CP A3923 — see handy form pages 2-3

MATERIALS

Thermoplastic Film Protects Packaged Food Products

Applicable to dehydrated soup mix; fresh and processed foods; preserves flavor

Uses — This elastic resin (Koroseal) — a plasticized polyvinyl chloride lends itself to a wide variety of applications of which one of the most interesting is the packaging of food products. Typical of applications for which this material is suited is as package for dehydrated soups as



"Koroseal" transparent, protective packaging for soup-mix illustrated. Other industrial applications: gaskets, tubing, hose, non-corrosive tank linings, etc.

Features — Since "Koroseal" has no odor and imparts no taste to fresh or preserved foods, containers utilizing this material preserve food flavor and freshness.

Description — "Koroseal" is actually developed from coke, limestone and salt. It is a thermoplastic material, not rubber. It can be made in any form, shape, in any degree of hardness, clear or in color. It can be used as thin sheets or film. It serves in many food processing operations because of its freedom from contaminating effect on food products or other materials in which a high degree of purity is essential. It is utilized in hose for beer and other liquids. Another example of its application in food processing indicative of its important properties is its use to make soft caps for use on automatic orange reaming machinery. These provide for the proper handling of fruit; resist the oils and acids in the orange skins and do not give foreign odor, taste or color to the juice. Literature giving complete information on "Koroseal" and its applications is available on request.

B. F. GOODRICH CO., Dept. CP, Akron, Ohio (Industrial Products Div.)

When inquiring specify CP A3924 — see handy form pages 2-3

★

Ball & Roller Bearing Grease

Stable, resistant to oxidation; 8 *oz. tubes*

Uses — For lubricating from 13 degrees F to 176 degrees F for all speeds up to 3600 rpm and for horizontal or vertical operation.

Features — Remains in bearing for indefinite period without drying out, caking or separating.

Description — This special grease for ball and roller bearing motors is stable, highly resistant to oxidation. It is packed in a handy eight ounce tube of special design for



SUGGESTED APPLICATIONS:
Interior and Exterior Paints · Varnishes and Lacquers · Textile Coatings · Wood Impregnation · Polishes · Floor Coverings · Glues and Adhesives · Paper Coatings and many other peacetime uses.

OUTSTANDING PROPERTIES
Chemically Inert · Highly Adhesive · Non Toxic · Water Repellent · Flame Resistant · Wide Compatibility · Improves moisture vapor resistance of some resins.

Investigate the possibilities of Chlorowax for your peacetime products.

Net Contents of Drum—250 lbs.

Write Today.... for your copy of this brochure.

CHLOROWAX

DIAMOND ALKALI COMPANY
PITTSBURGH, PA.
and Everywhere

When inquiring specify CP A3925 — see handy form pages 2-3



When inquiring specify CP A3926 — see handy form pages 2-3

easy and economical application. A large opening in the long nasal spout which fits into a one-eighth inch pipe coupling and a key with which to wind and exert pressure from the bottom of the tube contribute to convenience in using this product. Additional information on request.

WESTINGHOUSE ELEC. & MFG. CO., Dept. CP, 511 Wood St., Pittsburgh 30, Pa.

When inquiring specify CP A3927 — see handy form pages 2-3

★

Booklet Lists Properties, Specifications and Uses of 15 Synthetic Alcohols

Complete information about 15 different alcohols is to be found in a new booklet just published by a major producer. One of a series of booklets about organic chemical groups, this booklet lists properties, specifications, shipping data, and information about the uses of alcohols, as well as graphs showing the variation of important properties with respect to temperature, their properties in aqueous solutions, evaporation rates, and solvent power in combination with other solvents. A compilation of constant boiling mixtures and a handy bibliography make this publication an excellent reference booklet. The alcohols discussed are suitable for anti-freezes, antiseptics, defoamers, intermediates, solvents and extracants and many other products. They are: Methanol, Ethanol, Isopropanol, Allyl Alcohol. In connection with this alcohol the booklet states that — "it possesses both an unsaturated linkage and a hydroxyl group, is a versatile raw material for chemical synthesis. It may be converted to acrolein dehydrogenation or oxidation, to propionaldehyde by isomerization, to allyl halides by treatment with halogen acids, to chlorpropanediol by addition of hypohalous acids, to 2, 3 — dichlorpropanol — 1 by addition of halogens, or to glycerol by hydrolysis of the halodrins. The unsaturated linkage of Allyl Alcohol will also undergo addition reactions with mercaptans, sulfur dioxide, and bisulfites. The double bond of Allyl Alcohol is of particular importance because it makes possible the polymerization not only of the alcohol itself but also a host of other products containing the allyl group. Certain derivatives of Allyl Alcohols are useful as flavoring materials. Allyl capronate is used in fruit flavors; allyl isothiocyanate is also known as allyl mustard, mustard oil allyl sulfide is a constituent of oil of garlic. Allyl chloride and bromide are useful alkylating agents for the introduction of the alkyl into organic compounds, particularly the barbiturate sedatives. Also included in the fifteen alcohols are Butanol, Methyl Amyl Alcohol, prefered in ore flotations and useful in lacquer formulations, 2-Ethylbutanol, Hexanol, Heptanol-2, useful in connection with wetting agents, perfumes, etc., Diacetone Alcohol for cellulose acetate lacquers and for addition to glycerol-alcohol anti-freeze mixtures. The remaining alcohols dealt with are: 2-Ethylhexanol, foaming agents, dispersant, etc., Trimethylcyclohexanol offering among its various applications promise as a menthol and camphor substitute, Udecanol, Tetradecanol and Heptadecanol. The last three comprise a group of synthetic secondary, branched-chain alcohols, comparable in molecular size to the so-called fatty alcohols derived from naturally occurring vegetable and animal fats and waxes. Heptadecanol is being used as a defoamer to increase the capacity of the deep tank fermentation method of making penicillin. Copies of this booklet on "Alcohols" are available upon request.

UNION CARBIDE & CARBON CHEMICALS CORP., Dept. CP, 30 East 42nd St., New York 17, N. Y.

When inquiring specify CP A3928 — see handy form pages 2-3



UNRETOUCHED PHOTOGRAPHS OF A MURIATIC ACID PLANT

(Name on Request)

PHOTO 1 — Concrete columns in muriatic acid plant in areas next to and above furnace. Temperature on surface is high, condensation great, when plant is shut down. High concentration of HCL fumes in the air at all times. Picture shows salt deposits caked on Prufcoat treated concrete with no failure or disintegration of either the Prufcoat coating or the concrete.

PHOTO 2 — Ceiling in same plant. Acid fumes had eaten out the concrete and were attacking the reinforcing rods. Surface was wire brushed and treated with three coats of Prufcoat and has stood up without further treatment for six years. The supporting columns had disintegrated so far that rebuilding was necessary before treating.

PHOTO 3 — An area in the same plant where Prufcoat was applied right over previously disintegrating concrete and reinforcing rods. The newer looking sections had gone so far that they had to be rebuilt. Stack could not be coated because of its intense heat, but Prufcoat has been used on all adjacent areas. Finish is light buff color instead of customary black.

PHOTO 4 — Close-up shot in same acid plant showing surfaces protected with Prufcoat. Joints in tile wall were treated with Prufcoat Clear, ceiling with Buff and other surfaces with Gray. Application was done by the plant's own maintenance crew. After six years of continuous HCL fumes, no failure shows. Previous coatings required repainting once a month.

No matter what your corrosion-proofing problem may be, chances are Prufcoat can show you a performance-proved treatment that will cut maintenance costs. Write for free descriptive booklet to Prufcoat Laboratories, Inc., 50 East 42nd Street, New York City.

PRUFCOAT

gives Positive Protection against ACIDS, ALKALIS, OIL & WATER!

One material for application to *all* concrete, structural steel, floors, pipes, tanks and machinery

When inquiring specify CP A3929 . . . see information request blank, pgs. 2-3



SULPHO HAND CLEANER

Will Not Defat the Skin

Due to the nature of Sulpho, it has an almost neutral pH. Its cost compares favorably with products of lesser efficiency.

Write for Literature



WEST DISINFECTING Company

12-16 WEST ST. • LONG ISLAND CITY 1 • N. Y. • DEPT. CP

When inquiring specify CP A3930 — see handy form pages 2-3

MATERIALS

Styraloy Floats on Water

Plastic has great low temperature flexibility

Uses — Developed during the war for military use and for cable sheathing, it has properties which place it between rigid plastics and rubber. It is the lightest in weight of all the Dow plastics and will float on water.

Features — Its flexibility at low temperatures is one of its outstanding characteristics. A graphic test of this property is made with rod like sections of this plastic — Styraloy — which have been stored in dry ice.

Description — When combined with synthetic rubber, Styraloy imparts more flexibility at low temperatures, better electrical properties and lower water absorption. It also provides more uniform flow and better surface finish resulting in lower fabricating costs.

DOW CHEMICAL CO., Dept. CP, Midland, Mich.

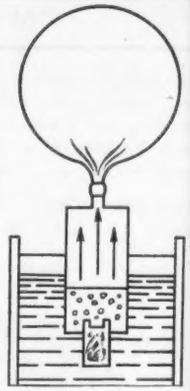
When inquiring specify CP A3931 — see handy form pages 2-3

★

The Use of Ascorbic Acid In Frozen Fruits and Fruit Juices

"The Use of Ascorbic Acid in the Food Industry in Fruits and Fruit Juices," is the subject of a booklet recently issued by Charles Pfizer & Co., Inc. It refers briefly to the company's constantly expanding output of ascorbic acid and improvements in processes and the fact that it can be economically included in various food stuffs. The two distinct uses of ascorbic acid in the food field are defined: (1) As a valuable antioxidant — aiding in the prevention of the "browning" of peaches or other fruits

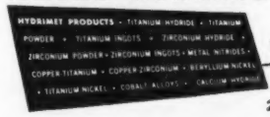
CANNED HYDROGEN



A few holes are punched in the top of the small Metal Hydrides' can of Calcium Hydride and the whole submerged in water. Hydrogen is collected in a rubber envelope which acts as a simple gasometer to supply hydrogen at desired rate.

Developed by Metal Hydrides for use in the field by the U. S. Army Signal Corps, canned Calcium Hydride charges giving 6 to 24 cubic feet of hydrogen are now available for civilian use. Ideal for laboratory operations, Metal Hydrides' Canned Hydrogen is a foolproof form of supply that can be kept conveniently on your stock room shelf. *Order direct from the factory.*

METAL HYDRIDES INCORPORATED



Helping Industry to Put the Right Metal in the Right Place

20 Congress Street, Beverly, Massachusetts

When inquiring specify CP A3933 — see handy form pages 2-3

SEE WHAT FURFURYL ALCOHOL *Can Do for You*

Here's a chemical with which you should become better acquainted. It is so versatile and its properties so diverse that it may well be able to fit advantageously into your scheme of operations, whatever they may be. Of especial interest is its extreme reactivity and the many things you can do with Furfuryl Alcohol. A few of the typical reactions with Furfuryl Alcohol are indicated on the chart. Products of these reactions that are commercially available are indicated by an asterisk.

Supply of Furfuryl Alcohol is plentiful and price is moderate.

Samples of products marked * or † are available for those who see in them a possible application to their problems. Available data and literature references on properties and preparations of those compounds not yet available will be gladly furnished when requested on your letterhead.

QUAKER

***Furfuryl* ALCOHOL**

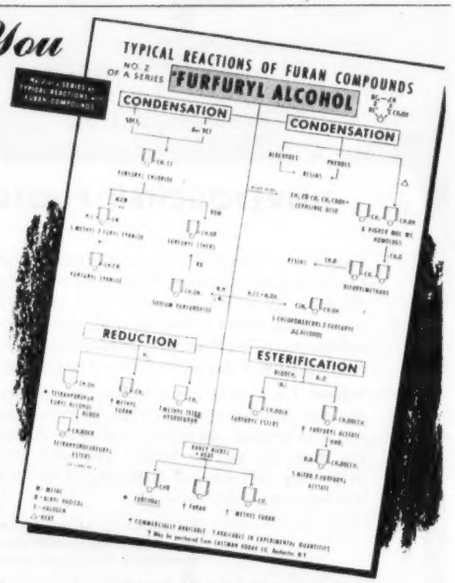
(TECHNICAL)

$C_4H_3O\text{-}CH_2OH$

Molecular Weight	98.10
Freezing Point, °C	−31
Boiling Range, °C (95%)	167 to 177
Specific Gravity (25/25°C)	1.130
Flash Point (open cup) °C	75
Refractive Index (25/D)	1.4868
Vapor Pressure at 30°C, mm Hg	2
Surface Tension (dynes/cm)	38.2

SHIPPING INFORMATION

Standard Containers: 9, 45, 90 and 500 lb. drums (net).
Carload of Drums (80) ..... 40,000 lbs.
Tank Car, 8000 gal. ..... 75,000 lbs.
Can and Drums non-returnable



Diagrammatic charts of Furfuryl Alcohol reactions in file size (8½ x 11) or for wall hanging (18 x 24) are available on request. Please specify size preferred.



We are publishing a new series of Bulletins on the Furans. Two of these Bulletins are just off the press: Bulletin 201—General Information about Furfural. Bulletin 202—Introduction to the Chemistry of the Furans.

The Quaker Oats Company CHEMICALS DEPT.

1930 BOARD OF TRADE BLDG., 141 W. JACKSON BLVD., CHICAGO 4, ILLINOIS

FURFURAL • FURFURYL ALCOHOL • FUROIC ACID • TETRAHYDROFURFURYL ALCOHOL

When inquiring specify CP A3932 . . . see information request blank, pgs. 2-3

Where Product Purity is Paramount



Amersil ANNEALED SILICA **Equipment is Specified**

IN the manufacture of luminescent materials for television cathode ray tubes, one part per million of impurity in the product can seriously impair the color and reduce the light efficiency. For example, minute concentrations of iron have this effect on the phosphor zinc sulfide. No wonder then that *only* annealed silica trays, crucibles, and covers are used in this process.

When you have a purity-high temperature problem, why not investigate Amersil. Write for informative catalog.

*Trade Name Registered

AMERSIL COMPANY Inc.

CHESTNUT AVENUE ENGELHARD HILLSIDE 5, N. J.

When inquiring specify CP A3934 — see handy form pages 2-3

and the deterioration of flavor. (2) As a means of restoring or increasing Vitamin C content in fruit juices or other food products or adding this important vitamin to fruit juices which lack vitamin C. As produced by this company ascorbic acid is a white crystalline solid, readily soluble in water. Such solutions have approximately the same hydrogen ion concentration as similar ones in citric acid, and will form salts in the same manner as other monobasic acids. The dry crystals are stable in air and thus require little but a clean dry room for storage. In discussing the properties of ascorbic acid the booklet points out that in solutions it is slowly oxidized by atmospheric oxygen even at room temperatures, while at elevated temperatures decomposition is even more rapid. Heating of solutions, particularly with air present is to be avoided, if possible. Suggestions for proper procedure in incorporating ascorbic acid in canned or bottled goods is outlined. The subject of prevention of discoloration receives deserved attention and the problem as it applies to peaches, plums, cherries, pears, and apples is given detailed presentation and the use of ascorbic acid contrasted with other methods. It is pointed out that the addition of ascorbic acid to frozen fruits does not introduce any new steps into the process, nor does it cause the finished fruit to have a taste different than the fresh fruit. Considerable space is devoted to instructions on prevention of discoloration of frozen peaches with syrup and in this connection the preparation of the syrup. The amount of ascorbic acid to be incorporated is carefully detailed. Subsequent data deals with frozen peaches without sugar and also the treatment of other fruits.

Concerning the fortification of certain fruits with vitamin C attention is directed to the prevailing interest in this matter and that fortification of juices to a predetermined level seems a logical step. The minimum daily requirements of vitamin C as established by the Food & Drug Administration are tabulated. They are: Infants — 10 mg., children 1-12, 20 mg., over 12 and adults, 30 mg. Optimum daily needs as recommended by National Research Council (1941) are placed at 70 — 75 mg. for moderately active men and women. Because of the susceptibility to oxidation, addition of the vitamin is made as late in the processing as possible. For instance, the required amount of ascorbic acid, in about two quarts of freshly sterilized cooled juice, is added to 200 gallons of the pasteurized juice just before filling cans following pasteurization. The addition takes place with the minimum careful stirring necessary to give a thoroughly mixed solution. Since the solution is hot, immediate aeration is advisable. Immediately following this, the cans are fully filled so that no head space is present in the can after sealing. In large plants using a flash sterilizer, compounding may be equally well performed just prior to sterilization. Care must be exercised in all future steps to avoid compounding with air. The booklet cites other data on vitamin addition and on apple juice as a carrier and various procedures in processing. The closing portion of the booklet contains material concerning determination of ascorbic acid in foodstuffs — methods for vitamin C assays. Supplies of ascorbic acid are available from this organization in 500 gram bottles, 1 kilogram bottles, 2 kilogram fiber containers and a number of successively larger sizes up to 50 kilogram fiber containers. Literature and additional information concerning ascorbic acid and its application in specific requirements is available on request.

CHARLES PFIZER & CO., INC., Dept. CP, 81 Maiden Lane, New York 7, N. Y.

When inquiring specify CP A3935 — see handy form pages 2-3

2 NEW, SAFE,* ECONOMICAL CATALYTIC AND POLYMERIZATION AGENTS

. . . decomposing at temperatures ranging from 70° C. to 250° C.

***These two interesting peroxides are not classified as explosive hazards by the Insurance Laboratories, Bureau of Explosives or I. C. C.**

*t-BUTYL PERBENZOATE

DESCRIPTION AND AVAILABILITY

A liquid, organic peroxide (8.00–8.50% available oxygen) which in addition to being relatively non-volatile and highly stable, is easily miscible with many Monomeric Materials, effectively catalysing these materials to form extremely clear, bubble-free films. *In limited commercial production. Samples will gladly be sent anyone interested.*

PROPERTIES

Molecular Weight	194
Available Oxygen	8.00-8.50%
Color	Light Yellow
Specific Gravity @ 20° C	0.859
Refractive Index @ 25° C	1.489
Vapor Pressure	Less than 10 mm. of mercury at 100° C.
Freezing Point	−2° to −4° C.
Decomposition Point	113°-116° C.
Sensitivity	Insensitive to shock, rubbing, grinding. Highly stable at room temperature.
Stability	Stable over iron, aluminum, copper, tin, zinc. Decomposes slowly over lead.
Solubility	Soluble in all proportions in all common organic solvents.

SUGGESTED USES

1. As an effective catalyst in bulk polymerizations.
2. As a good high temperature polymerization catalyst.
3. Wherever organic peroxides are of interest.

*t-BUTYL HYDROPEROXIDE

DESCRIPTION AND AVAILABILITY

An organic, alkyl peroxide that is standardized at a concentration of 60% (10.66% available oxygen). Use of proper activators increases the rate of release of oxygen. *In limited commercial production. Samples will be gladly sent anyone interested.*

PROPERTIES

Molecular Weight	90
Available Oxygen	10.66%
Color	Water White
Specific Gravity @ 25°C.	0.859
Refractive Index @ 25°C.	1.396
Boiling Range	90° - 107°C.
Flash Point	18.3°C.
Freezing Point	−35° C. to −36°C.
Decomposition Temperature	76.6° C.
pH of 1 part 60% Conc. in 10 parts water	4
Solubility	60% Conc. in water 11%
	Water in 60% Conc. 5%
	In short chain aliphatics Excellent
	In aromatics Excellent

SUGGESTED USES

1. As a catalytic agent in single and two phase polymerization reactions, as for example: in the polymerization of vinyl polymers and co-polymers; in the polymerization of diene hydrocarbons used in synthetic elastomers.
2. As a source of oxygen in the drying of paints.
3. As an oxidizing agent for laboratory purposes.

*U. S. Patents 2176407, 2223807, 2298405

Address all inquiries to the Union Bay State Chemical Company, Peroxides Division, 50 Harvard Street, Cambridge 42, Massachusetts.

UBS

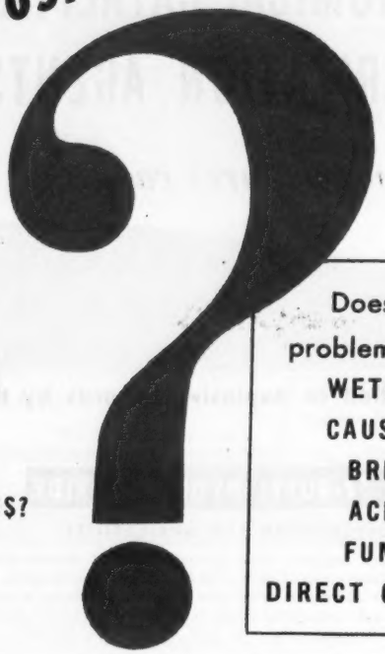
UNION BAY STATE *Chemical Company*

Serving Industry with Creative Chemistry

ORGANIC CHEMICALS · SYNTHETIC LATEX · SYNTHETIC RUBBER
PLASTICS · INDUSTRIAL ADHESIVES · DISPERSIONS
COATING COMPOUNDS · IMPREGNATING MATERIALS · COMBINING CEMENTS

When inquiring specify CP A3936 . . . see information request blank, pgs. 2-3

Where do YOU Need Corrosion Control—



TANKS?
FLOORS?
HOODS?
CEILINGS?
PIPING?
VATS?
STANDARDS?
BEAMS?
DUCTS?
DRYERS?

Does your problem include:
WETNESS?
CAUSTICS?
BRINE?
ACIDS?
FUMES?
DIRECT CONTACT?

ACID-CAUSTICBOND

(BRUSH APPLIED RESISTANT COATING — CLEAR AND IN COLORS)
GLOSS BLACK INDIAN RED SMOKE GRAY MIST GRAY IVORY TAN

Acid-Causticbond is a hard-drying, plasticized resin coating for general application to Floors, Structures, and Equipment. Prevents corrosion from fumes and spillage of strong Acids or Alkalis. Resistant to:

Acetic Acid	Bleach Solutions	Caustic Soda
Hydrofluoric Acid	Chlorine	Calcium Chloride
Lactic Acid	Cyanides	Tri-Sodium Phosphate
Muriatic Acid	Formaldehyde	Escaped Flue Gases
Nitric Acid	Salt Solutions	Pickling Solutions
Oleic Acid	Sodium Hydroxide	Fruit and Vegetable Juices
Phosphoric Acid	Sodium Hypochloride	Lubricating Oils
Sulphuric Acid	Sulphur Dioxide	Refrigerant

For Exposed or Submerged Surfaces of Metal, Concrete or Wood.

Technical Bulletin on Request



Write our Technical Service Director about your corrosion problem. Our long and constant experience with such problems will prove of real benefit to you.

THE WILBUR & WILLIAMS COMPANY
DEPT. 693, BOSTON 16, MASS.
PROTECTIONEERING IS OUR JOB!

When inquiring specify CP A3937 — see handy form pages 2-3

MATERIALS

Stainless Steel Handbook Gives Analyses of Grades

A handbook on stainless steel lists the more important types of stainless and heat resisting steels made by major producer. Charted data covering a number of pages gives the analysis of each grade, general properties, mechanical properties at room temperatures and the temperature ranges for hot working and heat treating. The sections following the chart section describe the general characteristics of these steels, together with some suggestions as to their applications. The next division of the book is devoted to tabulations and information on the resistance of the most widely used grades to attack by various media, while the latter portion of the volume discusses forms, sizes and finishes available. The foreword of the book emphasizes that in the selection of the proper grade of corrosion and heat resisting steel for a given application, it should be remembered that laboratory tests, while indicative of service life do not give the test afforded by use of the material under actual operating conditions. The latter procedure is important where extensive construction is being considered. Copies of this 100 page pocket sized handbook are available to those requiring this essential data.

The series of "Blue Sheets also issued by this company supplement the data which can be given but briefly in a book of this size.

ALLEGHENY LUDLUM STEEL CORP., Dept. CP, Brakenbridge, Pa.

When inquiring specify CP A3938 — see handy form pages 2-3

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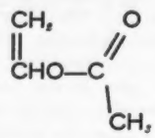
Corrosive Lining Service For Pipe, Tanks, Cars

Illustrated bulletin describes services of organization of industrial lining engineers whose function is to specify and assist in the application of the particular type of lining selected from the diversified field of lining materials best suited to the problem. The organization maintains its own plant equipped to handle lining applications from small pipe to railroad tank cars. Portable lining equipment for sandblasting, lining application and baking makes it possible to apply linings to equipment in customer's plant. This is for cases where it is impractical to ship parts. Copies of bulletin on request.

INDUSTRIAL LINING ENGINEERS, INC., Dept. CP, Edgeworth (Sewickley P. O.), Pa.

When inquiring specify CP A3939 — see handy form pages 2-3

UNPOLYMERIZED
VINYL ACETATE
(STABILIZED)



Boiling Range 71.8° to 73°C.

Vinyl Acetate can be polymerized to form resins with exceptional bonding qualities for wood, glass, metal and fibre

Containers:—

410 lb. drums; 62,500 lb. tank cars
For further information write to:



When inquiring specify CP A3940 — see handy form pages 2-3

WAXES
CARNAUBA
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CANDELILLA
CRUDE AND REFINED

DOMESTIC
OZOKERITE
AND
CERESINE

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DistTec
DISTRIBUTING & TRADING CO.
444 MADISON AVENUE • NEW YORK 22

When inquiring specify CP A3941 — see handy form pages 2-3



Use Plastic Lead Seal for gaskets, studs, threads. Makes a smooth, leak-proof joint. Plastic Lead Seal is ONE compound with ALL these features:

- **Insoluble in refrigerants, gasoline, anti-freezes, water, butane, propane, etc.**
- **Stops leakage permanently; fills clearances.**
- **Lubricates threads; prevents rust. Makes joints easy to take apart later.**
- **Never hardens; won't crack under vibration.**
- **Ready for use, in 1, 5 or 7 lb. cans.**

Try a can of Plastic Lead Seal — watch it cut maintenance and production line costs!

CRANE PACKING COMPANY 1821 CUYLER AVE. • CHICAGO 13, ILL.

When inquiring specify CP A3942 — see handy form pages 2-3



One of America's Most DEPENDABLE Textile Sources For The Chemical Industry

Burcott Mills regularly supplies cotton ducks and filter fabrics for the following industries: Chemical, Oil & Wax, Dyestuff, Cement, Cane & Beet Sugar, Food-Processing, Ceramic Processing, Paint, Mining, Quarry and Smelting.

Just a few of the items for quick delivery from Chicago stock:

26" No. 6 Duck	30" No. 8 Duck
36" No. 6 Duck	48" No. 8 Duck
37" No. 8 Duck	60" No. 8 Duck

26" 19.00 oz. Chain Cloth
32" 19.00 oz. Chain Cloth
26" 17.50 oz. Filter Twill
32" 17.50 oz. Filter Twill
26" 18.25 oz. Filter Twill

Subject to prior sale
WRITE, WIRE, OR PHONE.

BURCOTT MILLS

622 W. Fulton Street **Chicago 6, Illinois**

When inquiring specify CP A3943 — see handy form pages 2-3

MATERIALS

Safety Pulley Lagging

Two page bulletin describes "Grip-On" safety pulley lagging. The pile face provides for improved traction and the exceptionally compact woven base holds the bolts or screws. The lagging is furnished either "raw" or "impregnated." It is made a scant 3/8" thick and for two types of application. (1) A 2½ inch width lagging that is wound spirally on pulleys and then anchored; (2) Full width or wise lagging in which the base is ¼" wider than the pile. This is applied in the conventional manner. The full width lagging is offered in widths 4 - 20 inches.

VICTOR BALATA & TEXTILE BELTING CO., Dept. CP, 345 W. Hubbard St., Chicago 10, Ill.

When inquiring specify CP A3944 — see handy form pages 2-3

★

Publications on Nickel Alloy Steels & Others

A revised "A" list of current publications of Nickel Alloy Steels, Nickel Cast Irons, Nickel Brass & Bronzes, and Nickel Plating has recently been issued. The publications cover the production, fabrication, properties, and uses of Nickel Alloys for industrial applications, and the production, properties and uses of Nickel electrodeposits.

INTERNATIONAL NICKEL CO., INC., Dept. CP, 67 Wall St., New York 5, N. Y.

When inquiring specify CP A3945 — see handy form pages 2-3

★

All Purpose Plastic Insulating Cement

A four-page fully illustrated folder provides factual information on insulating cement described as an all purpose insulation. It is named Baldwin-Hill No. 1 Insulating Cement. It is produced from high temperature resisting, nodulated black Rockwool combined with a high grade long fiber asbestos and a colloidal clay. It is effective up to 1800 degrees F. and reclaimable where temperatures have not exceeded 1200 degrees F. It is naturally non-combustible. It meets the requirements for a plastic insulation suitable for insulating large or small irregular surfaces not suited to molded types of insulation. It is very convenient in doing maintenance work. The cement contains a rust inhibitor which resists corrosive action whether the cement dries out immediately on a hot surface or air dries over a long period of time. The folder contains information, tables, and charts on the efficiency of the product and its coverage.

BALDWIN-HILL CO., Dept. CP, 564 Klagg Ave., Trenton, N. J.

When inquiring specify CP A3946 — see handy form pages 2-3

Use ANSUL SO_2 and Avoid... Impurities

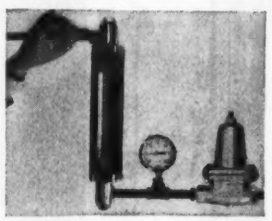
99.9+% [BY WEIGHT] PURE



TYPICAL ANALYSIS COMPARISON

Chemical	Ansul Liquid Sulfur Dioxide	Burner Gas	
		Poor Operation	Very Efficient Operation
SO_2	99.9+%	4.90%	19.08%
SO_3	0.00	1.95	0.10
H_2O	less than 0.01	1.47	0.40
S (Sublimed)	0.00	0.49	0.10
N_2	less than 0.10 (L.P.)	76.50	78.32
O_2		13.72	1.00
A		.97	1.00
Ash	0.00	Trace	Trace

An Easy-to-Install Ansul SO_2 System Gives You These Four Important Advantages



HIGHER PURITY—Elimination of impurities inherent in burner gas (Ansul Liquid SO_2 is 99.9+% [by weight] PURE).

GREATER ECONOMY—Small investment in equipment, materially reduced operating and maintenance costs, and freeing of valuable floor space.

FINGER-TIP CONTROL—Easy, positive, finger-tip control providing extreme accuracy for reaction or adjustment of pH.

GREATER SOLUBILITY—Solubility in water is 4 to 5 times greater than SO_2 from burner gas.

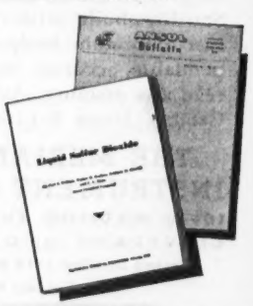
WRITE THE ANSUL TECHNICAL STAFF FOR FURTHER INFORMATION

LIQUID Sulfur Dioxide by ANSUL

PHYSICAL PROPERTIES

Chemical formula	SO_2
Molecular weight	64.06
Color (gas and liquid)	Colorless
Odor	Characteristic, pungent
Melting point	−103.9° F. (−75.5° C.)
Boiling point	14.0° F. (−10.0° C.)
Density of liquid at 80° F.	(85.03 lbs. per cu. ft.)
Specific gravity at 80° F.	1.363
Density of gas at 0° C. and 760 mm.	2.9267 grams per liter (0.1827 lb. per cu. ft.)
Critical temperature	314.82° F. (157.12° C.)
Critical pressure	1141.5 lbs. per sq. in. abs.
Solubility	Soluble in water
Purity	99.9+% (by wt.) SO_2 (H_2O less than 0.01%)

*REG. U. S. PAT. OFF.



Send for Bulletin 020.1, "A Comparison of Ansul SO_2 and Sulfur Burner Gas," and also for your copy of "Liquid Sulfur Dioxide"—a treatise on the properties, characteristics, and industrial uses of Liquid Sulfur Dioxide—written by the Ansul Technical Staff.

WRITE: Dept. D

ANSUL CHEMICAL COMPANY, MARINETTE, WIS.

Eastern Office: 60 E. 42nd St., New York City

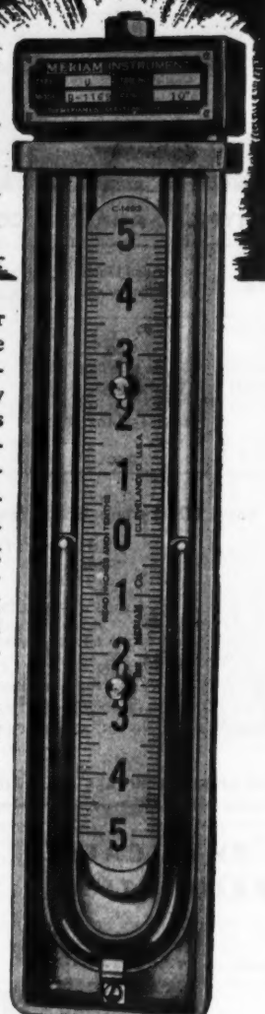
When inquiring specify CP A3947 — see handy form pages 2-3

MERIAM

B-1169

MANOMETER

for Distant Readings



This U-type manometer has bold ½" high scale numerals with bold graduations for quick and easy long-range readings. Its 7/16" (inside diameter) "pyrex" tubing gives a flat indicating fluid meniscus.

The exclusive Meriam Clean-Out feature permits filling and cleaning U-tube without disconnecting piping to manometer. Semi-steel clean-out head is easily removed from body frame.

Good for line pressures up to 100 lbs. per sq. in. Wall mounting design in three ranges: 10", 20", and 30". Sturdily built with rigid cast aluminum body — dependable, accurate, easy to read at a distance. Ask for Catalog Sheet B-1169.

THE MERIAM INSTRUMENT CO.
10940 MADISON AVENUE
CLEVELAND 2, OHIO

Western Division: 1418 Wilson Avenue, San Marino 9, California
In Canada: Peacock Bros., Ltd., Montreal

MERIAM ★ Instruments ★
ESTABLISHED 1911
MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES

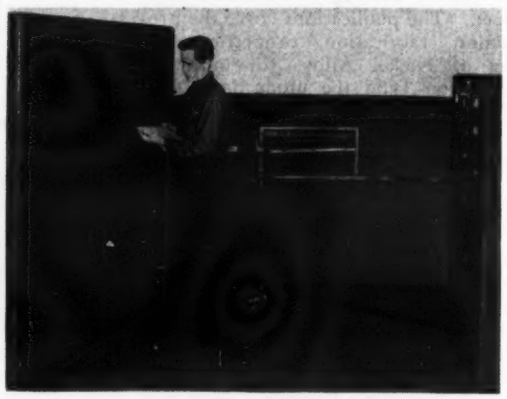
When inquiring specify CP A3948 — see handy form pages 2-3

★ INSTRUMENTS of CONTROL

"Quantometer" Allows Analysis Of 11 Elements in Less Than 1 Minute

For metal alloys, chemicals and a variety of materials; only one operator required

Uses — An entirely new direct-reading instrument which allows the quantitative chemical analysis of as many as eleven elements in metal alloys, chemicals, and a wide variety of other materials in less than one minute has recently been made available to the process industries.
Features — As quantitative spectro-analysis is the specific purpose of this instrument it is appropriately named the Quantometer. Principle advantage is the great speed with which it can simultaneously and automatically measure the quantities of a number of elements present in a sample. These results appear directly as a percentage composition on a series of counters, one for each element being determined. Only one operator is necessary. Picture shows set of analysis being tabulated by operator.
Description — The Quantometer consists of three units,



"Quantometer" comprises source unit, spectrometer, and recording console

a source unit which provides a powerful spark to the sample being analyzed, a spectrometer which disperses the light from the spark into a spectrum, and a recording console where the final analyses are shown. The source unit differs from the conventional units used in electrochemistry chiefly in the very high intensity discharge which is produces. The spectometer employs an original diffraction grating and is fitted with twelve receivers arranged to record light from as many spectrum lines. These receivers employing highly accurate integrating electrical circuits, replace the photographic emulsion used in spectrography. The recording console supplies all of the various voltage required to operate the receivers and houses the counting units which provide the final direct analyses.

The great rapidity with which analysis can be performed is a factor of greatest interest in connection with processes where step by step control of composition is necessary. For instance, in the metal producing industry, many separate melting operations or the holding of the melts while composition is being checked can be eliminated. This instrument also offers savings in fuel and overhead costs. Further the alloys produced can be kept to much narrower specification limits.

HARRY W. DIETERT CO., Dept. CP, 9330 Roselawn Ave., Detroit 4, Mich.

When inquiring specify CP A3949 — see handy form pages 2-3

★

Thermocouple Protecting Tubes

Wall thickness uniformity + or — 1/32 In.

Uses — These advanced thermocouple protecting tubes meet many new requirements of chemical, metallurgical and die casting industries
Description — The new tubes have a uniform wall thickness to within plus or minus one thirty-second of an inch and have better surface finishes. They are cast with both ends open, permitting positive support for the core at each end. One end is closed with a cast iron plug, welded in place with a cast iron filler rod, the opposite end being threaded for a one inch standard pipe. The tubes have an inside diameter of 13/16 inches; outside diameter of 1 3/8 inches; wall thickness of 9/32 inches; a minimum top thickness of 9/32 inches; and weigh 4.5 pounds.

BROWN INSTRUMENT CO., Wayne & Roberts Aves., Philadelphia, Pa.

When inquiring specify CP A3950 — see handy form pages 2-3

Good News for Laboratories About

PYREX FRITTED GLASSWARE



"Pyrex" Fritted Glassware is now available at your Laboratory Supply Dealer's. He can provide all items you need in this newest aid to chemical filtration.

Glass particles of uniform size, made from Pyrex brand Chemical Glass No. 774, are fritted by a special process and sealed into transparent bodies—cells, beakers, crucibles, tubes, etc.—fabricated from the same glass. No flux or glazing material is used.

Five porosities, from ultra fine to extra coarse, cover practically every possible requirement. Filtration, extraction and dispersion are completely visible at all times and the glass—both disc and body—is not affected by solutions which destroy other filtering media. Pyrex Fritted Glassware is described in Part III of Catalog LP 24. Consult your regular laboratory supply dealer for delivery data.

"Pyrex" is a registered trade-mark and indicates manufacture by

CORNING GLASS WORKS • CORNING, N.Y.

PYREX BALANCED FOR ALL-AROUND USE *brand* **LABORATORY GLASSWARE**

CORNING Means Research in Glass

When inquiring specify CP A3951 — see handy form pages 2-3

INSTRUMENTS

General Purpose Oscillograph

New model features refinements developed during extensive war service

Uses — A great number of the preceding model (No. 208) of this general purpose instrument were in use prior to and during the war. As the result of extensive service, this 5 inch oscillograph has emerged with many improvements and refinements and is identified as Type 208-B.

Description — The Type 208-B Cathode-ray Oscillograph is an instrument designed to operate the modern high-vacuum cathode-ray tube as an oscillograph with sufficient flexibility and convenience of control to facilitate its application to the great majority of all laboratory and production requirements. Normally, the instrument is supplied with a Type 5LP1, 5" intensifier type cathode-ray tube utilizing electrostatic focusing and orthogonal electrostatic deflection. The cathode-ray tube is operated at a total accelerating potential of 1400 volts. Unusually high gain amplifiers have been provided for deflection of the vertical axis, and a gas discharge type relaxation oscillator is employed to provide a sweep circuit for the delineation of unknown signals as a linear function of time. A bulletin recently issued presents detailed information. It deals fully with the high-vacuum electron-lens focus type tube employed. This tube is especially useful in high frequencies because of its ability to remain in sharp focus at all deflecting frequencies. This type possess a further advantage in its complete freedom from origin distortion and its low deflection plate current. Deflection-amplifier circuit, input signal attentuation, sweep circuit are all discussed. Complete specifications are conveniently tabulated.

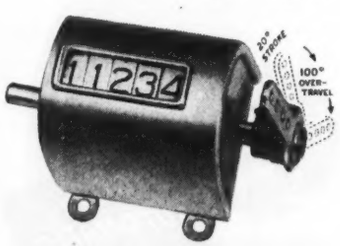
ALLEN B. Du MONT LABORATORIES, INC., Dept. CP, 2 Main Ave., Passaic, N. J.

When inquiring specify CP A3952 — see handy form pages 2-3

*

Counter With Over-Travel Arm

Built-in protection against over-travel of operating arm



Counter for built-in applications

Uses — This small, rugged non-reset stroke counter is ideal for built-in applications and provides for registerations up to 99, 999 and repeat by means of its five large numbering wheels.

Features — The arm may be installed on either side of the counter and set at any angle.

Description — The operating arm works against a coil spring which permits the arm to continue beyond the full stroke without injury to the counter. The counter is completely in a tamper-proof case and is suitably small and compact for efficient and convenient installation in built-in applications. Complete information concerning this and other counting devices is available upon request.

PRODUCTION INSTRUMENT CO., Dept. CP, 702-704 West Jackson Blvd., Chicago 6, Ill.

When inquiring specify CP A3953 — see handy form pages 2-3



THE *Royal* FAMILY OF LABORATORY FURNACES

Here are furnaces, the like of which laboratory technicians have never seen—vastly improved in both function and appearance. Engineered and built by the leaders in developing and manufacturing industrial heat-treating equipment, they are the last word in efficient and practical laboratory furnaces.

The Lindberg Box Furnace designed for fast and accurate metallurgical tests and chemical analyses heats up to 2000° F. Has built-in transformer; "Stepless" Input Controller and Indicating Pyrometer are contained in a separate metal case.

The Lindberg Pot-Crucible Furnace does salt or lead bath immersion tempering, hardening and annealing, cyaniding and aluminum heat-treating. On the other hand, as a crucible furnace, it is used for determining critical points of steel, melting base metals, thermocouple calibrations and other necessary laboratory operations for heats up to 2000° F.

The Lindberg Combustion Tube Furnace is designed for fast carbon and sulphur determinations using the volumetric method of analysis and for gravimetric type analyses for carbon determinations of all alloy steels including stainless and heat-resisting steels. Heats up to 2500° F.

The Lindberg Hot Plates are for precise, controlled all-round laboratory use for temperatures up to 950° F. Built-in input control provides exact temperature selection.

These furnaces can be secured from your laboratory equipment dealer. See him today for full information.

LINDBERG ENGINEERING COMPANY
2450 WEST HUBBARD STREET • CHICAGO 12, ILLINOIS

LINDBERG

WELL KNOWN THROUGHOUT THE WORLD AS LEADERS IN DEVELOPING AND MANUFACTURING INDUSTRIAL HEAT TREATING EQUIPMENT

ARMY E NAVY

SOLD EXCLUSIVELY THROUGH LABORATORY EQUIPMENT DEALERS

When inquiring specify CP A3954 . . . see information request blank, pgs. 2-3

ONE USER OF H-B Red-Top THERMO-REGULATORS says:

"If all other methods of temperature control were as satisfactory as your thermo-regulators, I would have lost a lot less sleep during the war."

● *An unsolicited testimonial from the director of one of America's largest research laboratories.*



● And this statement is based on the use of H-B Thermo-Regulators which after 17 years of continuous service are still going strong. Investigate the limitless applications of the H-B Red-Top Thermo-Regulator (adjustable thermostat) for accurately holding, controlling or limiting temperatures — *automatically*. Adjustable between minus 35° and plus 350° F. Write us for catalog No. 14, just off press.

H-B Instrument Company,
2510 N. Broad St.,
Philadelphia 32, Pa.

DOUBLE H B DIAMOND

THERMOMETERS • THERMOSTATS • RELAYS
THERMO-REGULATORS • HYDROMETERS

When inquiring specify CP A3955 — see handy form pages 2-3

INSTRUMENTS

Fluxmeter Provides Direct Reading Magnet Strength in Gauss

For laboratory and maintenance applications

Uses — Removal of security regulations permits revelation of details of this Direct-Reading Magnetic Fluxmeter which was developed in response to urgent needs of the Armed Services by this organization's engineers working in cooperation with the Office of Scientific Research and Development at the M.I.T. Radiation Laboratories of Cambridge, Massachusetts. The Marion Direct-Reading Fluxmeter was primarily developed for the very precise measurement of the field strengths of magnets used with magnetron assemblies. It is, however, a very versatile instrument. It can be used to measure magnetic fields and gaps ½" or greater, within the range of 1200 to 9600 gauss.

Description — The fluxmeter consists essentially, or rather simply, of two (2) very special D'arsonval instruments connected in series provided with suitable shunts, current and range selection controls. The two instruments forming this series circuit are unusual. The probe element or search coil assembly is a special moving system of extremely small size, whose components have all been minutely inspected and graded for magnetic impurities, in fields up to 25,000 gauss. The probe meter derives its energy from the magnet under test. A current of sufficient magnitude is passed through its moving coil assembly to deflect it to a fixed or set point on its scale. This current is then measured in terms of gauss, on a special suppressed scale milliammeter. By use of calibrating devices of the greatest accuracy, 0.1 per cent components and matched temperature coefficients of the circuits, the overall accuracy of the instrument in all fields, and at all points on the scale is considerably better than 1 per cent. This is actual, not estimated, and is an overall figure. The gauss meter, which is steel encased to provide shielding from the very strong magnetic fields which it is apt to encounter, has a suppressed scale that permits the use of a 4" instrument to indicate in this particular application, with a scale spread and accuracy that would ordinarily require an instrument of from 8" to 9" in diameter. The instrument reaches the zero point on the left-hand side of the scale when one milliampere of current is flowing, and reaches full scale at the right-hand side of the meter when 2 milliamperes of current are flowing through the circuit. Ordinarily, an instrument of this nature offers difficulties, due to the fact that it is impossible to properly zero-set it. However, the Marion Direct-Reading Fluxmeter has a current dividing network which permits the zero-setting to be made in the normal manner at the zero point on the meter, without affecting the suppression feature.

The fluxmeter is a very rugged instrument, as can be attested by its portable field use with all types of combat radar equipment, by the different branches of the Armed Services. It does not require leveling; it does not require special search coils, and, above all, is completely direct-reading in gauss. There is no computation required on the part of the user to measure field strength directly in gauss. It may also be used to monitor magnetic field strengths, constantly and continuously.

The essential data on the unit is as follows: Weight 6½ lbs. Carrying case of hand-rubbed oak, 5 x 6 x 10½ inches. Power source — a single Type D flashlight cell. The cable on the probe element is 4½ feet in length. The unit is provided with adapters for use with magnetron magnet assemblies having gaps of .550" to .750", with pole diameters of ¾" and with adapters for gaps of 1.3 to 1.5 inches with pole faces of 1⅝" and 2" in diameter.



For easier temperature measurements—

ALNOR PYROCON

with flexible arm

★ This contact pyrometer for surface temperature measurements is available with either flexible or rigid arm, and a choice of eleven types of thermocouples. The Pyrocon with flexible arm permits easy temperature readings in many locations otherwise inaccessible. The hand-held indicator is balanced for convenient use, and is a rugged, heavy duty instrument for reliable service under industrial plant conditions. Temperatures may be measured in liquids, molten metals, oils, bulk materials, and of surfaces, whether flat or curved, stationary or moving. Several standard ranges, 0-400 deg. F. to 0-1200 deg. F. Write for descriptive bulletin listing all types.

ILLINOIS TESTING LABORATORIES, INC.
420 NORTH LA SALLE STREET
CHICAGO 10, ILLINOIS

When inquiring specify CP A3956 — see handy form pages 2-3

AS QUICK AS A FLASH YOU CAN KNOW THE EXACT MEASUREMENT OF YOUR VALUABLE STORED LIQUIDS With **LIQUIDOMETER** *Tank Gauges*



WRITE for COMPLETE DETAILS

"LIQUIDS WORTH STORING ARE WORTH MEASURING"

THE LIQUIDOMETER CORP
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring specify CP A3957 — see handy form pages 2-3

For magnetic measurements in fields of non-standard magnets, and other sources, the probe element is marked with centering lines and provided with a handle so that it may be inserted into any field. In use, all that is required is to insert the probe into the roughly geometric center of the field to be measured, turn the current control until the probe pointer deflects to the red mark at full scale and then read directly on the scale of the gauss meter, the field strength in gauss. The probe can be removed from the field and the instrument read at any time, since it is of a constant indicating nature, and not of a ballistic type. One person can make all measurements without any difficulty whatsoever when using the Marion Series MFM2 and MFM3 fluxmeters.

MARION INSTRUMENT CO., Dept. CP, Manchester, N. H.

When inquiring specify CP A3958 — see handy form pages 2-3

★

Non-Destructive Measurement of Coatings on Metal Bases

Electronic instrument indicates film thicknesses up to .005 inch

Uses — This electronic instrument measures rapidly and non-destructively, the thickness of paint, varnish, lacquer, ceramics, plastics and other non-conducting coatings which may be deposited on non-magnetic base metals such as aluminum, brass, copper, bronze, etc.

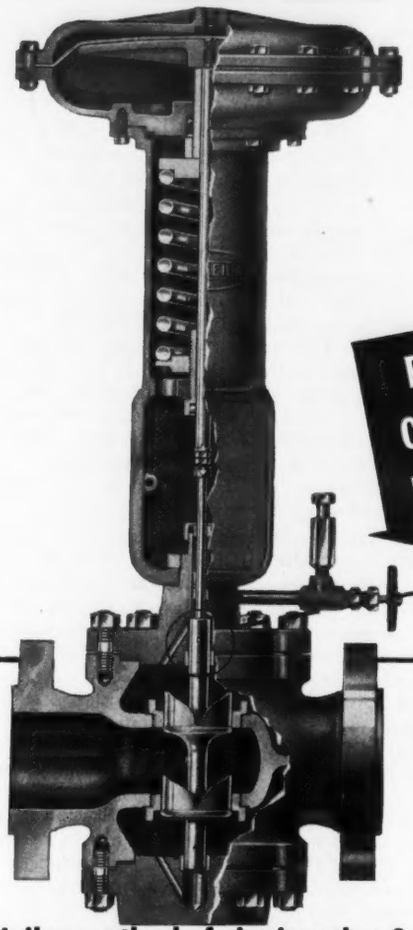
Features — The "Filmeter" is easy to use and measurements may be made in one half minute, including a "zero" thickness reference adjustment. The procedure is extremely simple and operating knowledge can be acquired easily. As coatings or base metals are not injured no recoating or discarding of specimens is required. The entire instrument is portable and weighs 11 pounds. Carrying case weighs 7½ pounds.

Description — The "Filmeter" consists of a battery-operated electronic beat-frequency oscillator contained in a 7 x 7 x 7 inch case. The inductance coil of one oscillator is mounted in the end of a tripod-mounted inductor and is connected to the instrument by means of a shielded rubber covered cable. Earphones enable the operator to determine when the two oscillators are set to the same frequency. The thickness that may be measured is from zero to 0.005 inch with an accuracy of 3% of full scale. Measurements may be made on any flat surface, or on convex or concave surfaces having a radius of curvature of not less than six inches. The base metal must not be less than 0.011 inch thick for copper and aluminum and not less than 0.02 inch thick for brass and bronze. There is no limit to the maximum thickness of the base metal. Conversion of dial readings to thickness is made by means of an adjustable calibration curve supplied with the instrument. This calibration may be checked at any time by means of the standard thickness sample supplied. If the calibration should change for any reason, the calibration curve can be adjusted to meet the new condition in a few seconds. The batteries used are standard type that will normally last from three to six months and the accuracy of the instrument is unaffected by reduced battery strength. The NRL Model 1 "Filmeter" is illustrated and described in Bulletin which is available on request.

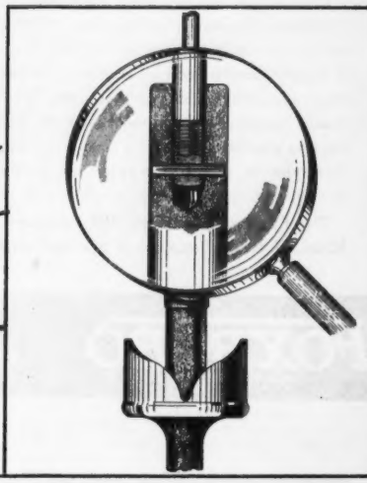
AMERICAN INSTRUMENT CO., Dept. CP, Silver Spring, Maryland.

When inquiring specify CP A3959 — see handy form pages 2-3

ATTENTION TO DETAIL



Pays Off in Control Valve Performance



Note: One skirt of the valve plug is 90° out of position in relation to the other.

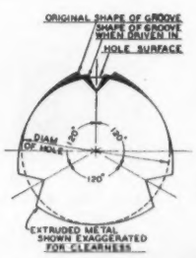
Mason-Neilan method of pinning plug & plug stem assures strongest possible assembly

The tee head construction used on some earlier control valves required clearance between the stem and plug to allow for bonnet and seat misalignment, permitting lost motion (vertical and rotary) which cannot be tolerated since the plug must respond to the slightest pressure change on the diaphragm.

The present Mason-Neilan threaded and pinned stem and plug construction does away with all toggles and free alignment joints, yet any tendency towards binding has been eliminated by pilot machining on the bonnet and blindhead and by holding all machine operations to close tolerances. The plug guide is drilled and tapped with a pilot section above the threads for accurate centering of the stem. The threaded joint provides the mechanical strength for holding the two parts together. The stem is locked into the plug by a special grooved pin which fits tightly at both ends in the guide as well as in the center through the stem.



Pins have three grooves extending from end to end, except for a short distance on one end which is the nominal diameter of the pin and serves as a pilot for driving.



In forming the grooves, a portion of the metal is displaced locally at the sides leaving a bulge of extruded metal along the edges of grooves and resulting in an expanded diameter. The action consists of forcing the elastic bulges partly back into the grooves when the pin is hammered or pressed into the drilled hole, thus forming an extremely tight fit against the hole wall.

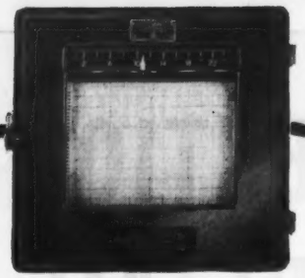
MASONEILAN

MASON-NEILAN REGULATOR COMPANY

1203 Adams Street, Boston 24, Massachusetts

New York Philadelphia Pittsburgh Cleveland Chicago Tulsa
Atlanta St. Louis Houston Los Angeles San Francisco
Mason Regulator Co. of Canada, Ltd., Montreal, Canada

When inquiring specify CP A3960 . . . see information request blank, pgs. 2-3



Easier, More-Exact

pH REGULATION

For any process requiring close regulation of acidity or alkalinity, Foxboro pH Recorders offer exceptional ease and accuracy in finding and holding the correct pH point. A perfect combination of standard Foxboro Potentiometer Recorders, electronic amplifiers, and glass electrodes furnishes continuous, exact records of pH. The glass-electrode method eliminates need for color-matching. Supplied with flow-type or immersion-type electrodes. Foxboro pH Recording Controllers also available for many uses.

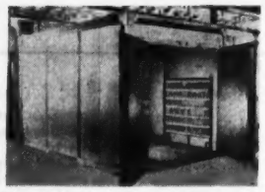
The Foxboro Company, 190 Neponset Ave., Foxboro, Mass., U. S. A. Branches in principal cities.

FOXBORO Reg. U. S. Pat. Off. — pH RECORDERS

When inquiring specify CP A3961 — see handy form pages 2-3

GIANT~ TRENT Electric OVENS or Little Giant?

With Long Life Heating Elements

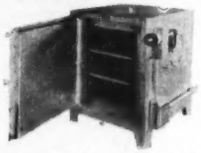


Largest or smallest TRENT Electrically Heated Ovens are identical in practical design, all-steel construction and low-cost efficiency. And they're ALL equipped with low-Watt, long-life heating elements . . . the heart of the oven.

TYPE JOF - 6' x 6' x 10'

Truck loading type, for processing chemicals and other industrial uses. To 700° F. Other comparable sizes available; also special designs to meet specific requirements.

NOTE — You can improve your present heating efficiency by replacing with TRENT Long-Life Heating Elements.



LOF - 12" x 12" x 16"

For pilot plant or laboratory experimental work. All the ruggedness and efficiency of larger types. To 600°F. Various sizes available.

TREN *Electrically Heated Industrial Equipment*

HAROLD E. TRENT COMPANY

FURNACES • OVENS • HEATING ELEMENTS

LAB and SPECIAL EQUIPMENT • KETTLES

235 LEVERINGTON AVE., PHILADELPHIA 27, PA.

When inquiring specify CP A3962 — see handy form pages 2-3

INSTRUMENTS

Water Admission & Level Valves

For tank level, waste overflow and shut-off

Uses — (No. 129 MODULATED WATER VALVE) This control is a float-operated water admission valve with automatic shut-off in the event of high water temperature.

Operation — The valve is installed within the tank at the desired height where normal water level is to be maintained. With tank empty, float will be in lowest position allowing unrestricted flow of water through the valve. Rise of float will shut off water valve preventing overflow. Normally substantially constant water level is obtained in the tank. The thermal system comprising thermo-sensitive bulb located in the tank and a bellows attached to it and mounted at the water valve, constitute a high temperature shut-off. As long as the water in the tank is cold, the water level is controlled entirely by the float. However, as soon as the water in the tank becomes warmer than desirable, the bellows are arranged to shut-off the water valve until this condition is remedied.

Description — The valve consists of a mounting bracket with water valve attached to it. The float is attached to the main bracket below the valve by means of a pivoted lever, the free end of which presses against the head of the water valve plunger when level of water is high and releasing it when level is low. The bellows are mounted on the same bracket above the water valve and actuate another pivoted lever which presses against the head of the water valve plunger when water temperature is higher than desired, shutting off the valve. When water is cold, the bellows lever releases the water plunger and float takes the control. The water valve is of stainless steel and remains shut against 100 psi of water pressure in the supply line. The water valve is made to deliver minimum of 10 gal./hr. at 25 psi when water temperature is 34 degrees F. Water valve is shut off when temperature reaches 39 degrees F. plus or minus 1 degree F. The shut-off temperature could be varied by the adjustment of range spring by plus or minus 5 degrees F. All parts of water valve, except thermal bellows system are stainless steel. Thermal system is 80-20 brass tin-plated. Float is of molded plastic. Mounting dimensions 6" x 4" x 8" approximately.

Uses — The Hy-Lo valve is an automatic, high level-cut out, water admission valve. It is particularly adapted for control of water storage tank level control; waste tank overflow control, equalizing tank, carbonator level control.

Operation — The Hy-Lo valve is installed within the water tank at the desired height where normal water level is to be maintained. With the tank empty, the valve power unit retains valve fully open, allowing unrestricted discharge of water. The rise of water level in the tank gradually immerses the sensing tube of the valve, diminishing the flow and stopping the discharge as soon as major portion of tube is covered with water. Subsequent drop in of water level in the tank by uncovering the sensing tube causes automatic resumption of water discharge through valve.

Description — (THE B-80 HY-LO VALVE) The Hy-Lo valve consists of a body with water inlet and outlet connections. The valve is actuated by the power diaphragm forming the lower part of the valve body. The diaphragm lifts the vertical valve plug off the seat against the spring and inlet water pressure. The diaphragm is responsive to the vapor pressure generated by the heating of the sensing tube which extends downward from the diaphragm and which constitutes a closed system with the former. The sensing tube is heated by passing about 10 ampere current at two volt AC. The pressure generated by the liquid

CONTROL TANK TEMPERATURES *Accurately*

STERLING Control No. 117



WHATEVER your process control requirements, you'll get better results with this single seated, tight-closing, balanced pilot operated valve Sterling Series No. 117 Control.

Built for steam pressures up to 125 lbs. Sensitive, quick-acting, functioning upon a drop in air or liquid temperature of 1 degree. Assures close, dependable regulation of temperature to desired setting.

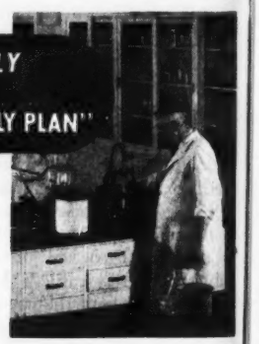
Available in 3 sizes — 1¼", 1½", and 2", with standard range of 130° to 170° plus other special ranges.

Sterling Temperature Controls are available in sizes from ⅜" and designed for a wide range of applications. Consult your local jobber. Write for Bulletin No. 451.

Sterling **INC.** 3738 N. Holton St., Milwaukee 12, Wis.

When inquiring specify CP A3963 — see handy form pages 2-3

EXPAND GRACEFULLY with KEWAUNEE'S "UNIT ASSEMBLY PLAN"



Avoid **"PATCHWORK" GROWTH** *in your Laboratory*

Kewaunee Laboratory Furniture Units are built to standard dimensions in perfect matching units. This enables your laboratory to "grow gracefully" as your business expands. Each Kewaunee Unit is top quality and designed for greatest efficiency and working convenience. All table and working surfaces are of KemROCK, Kewaunee's exclusive, rock-hard material that defiantly resists acids, alkalies, solvents and physical and thermal shock. Expand your laboratory gracefully and economically with Kewaunee's streamlined, matched units.

WRITE: INDUSTRIAL DIVISION

Kewaunee Mfg. Co. LABORATORY FURNITURE EXPERTS

C. G. Campbell, *President*

5011 South Center Street, Adrian, Michigan • Representatives in Principal Cities

When inquiring specify CP A3964 — see handy form pages 2-3

confined within the tube urges diaphragm upward, opening the valve and allowing discharge of water. The Hy-Lo valve is suitable for 150 psi water pressure at 32 degrees F. to 125 degrees F. maximum ambient temperature. It is rated to deliver minimum of 25 gallons of water at 25 psi pressure drop. The valve seat and plug are made of 416 stainless steel; valve spring 302 stainless steel; immersed portion of lead 347 stainless steel, ceramic insulated. Mounting dimensions 1½" x 8" approximately. ***(THE CARBO-TROL VALVE)*** An interesting example of the applications of these valves is that they are used in connection with the maker's "Carbo-trol" which is a combination of two-stage regulator, pressure switch, and dual edgewise pressure gauge, built into one compact unit for application with coin operated beverage vending machines. The Carbo-trol renders the machine inoperative when carbon dioxide cylinder is empty, in addition to providing controlled application of the carbon dioxide at desired low regulated pressure.

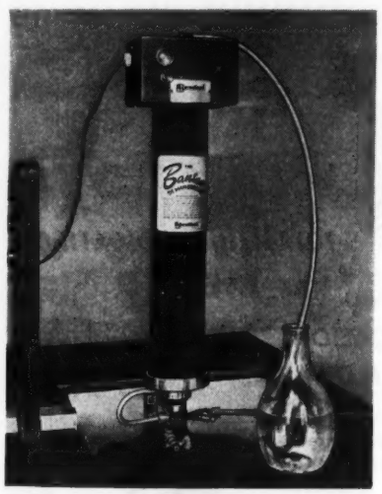
MANNING, MAXWELL & MOORE, INC., Dept. CP, Bridgeport 2, Conn.

When inquiring specify CP A3965 — see handy form pages 2-3

★

Bantam Demineralizer; 5-15 GPH

Uses resin cartridge; connects to water supply by rubber tubing or ¼" pipe



Demineralizer requires bench space of only 8"x8"

Uses — This bantam demineralizer is especially serviceable in laboratories where the amount of deionized water required is not great enough to justify lengthy regeneration processes. Flow rate is 5-15 gallons per hour. *Features* — The demineralizer employs a single renewable cartridge which contains both cation and anion resins which convert the dissolved salts in the water to corresponding acids, and then chemically absorbs these acids. Only electrical connection necessary is for indicator light which tells when new cartridge is needed. *Description* — One cartridge will produce approximately 300-400 gallons of demineralized water depending upon the hardness of the raw water supply. When resistance of effulence drops to 50,000 the indicator lamp goes out, indicating need for new cartridge. Can be mounted on wall or bench. Unit is 28 inches high with pedestal (see illustration) which is easily removed for wall mounting.

BARNSTEAD STILL & STERILIZER CO., Dept. CP, 2 Lanesville Terrace, Forest Hills, Boston 31, Mass.

When inquiring specify CP A3966 — see handy form pages 2-3



This New Data Book No. 1000

Contains Complete Information On

Republic Pneumatic Transmitters

OPERATING ON THE FORCE-BALANCE PRINCIPLE

for the measurement
and control of
FLOW
PRESSURE
LIQUID LEVEL
LIQUID DENSITY
DIFFERENTIAL VAPOR PRESSURE

A Copy of This 28 Page Data Book Will Be Mailed On Request

REPUBLIC FLOW METERS CORPORATION
2240 DIVERSEY PARKWAY • CHICAGO 47, ILLINOIS

When inquiring specify CP A3967 . . . see information request blank, pgs. 2-3



These are the original electric liquid level controls, pioneered by us in 1933. They have no floats — no vacuum tubes — no moving parts in the liquid. They control variations of levels of ¼" or more, and are not affected by pressures, temperatures, acids or caustics. Relay can be located any distance from the electrode. Special ice free electrodes where necessary.

WRITE FOR CATALOG

New CATALOG 145 contains complete technical descriptions of the many types available, together with wiring diagrams for various installations. Get full information on B/W controls. WRITE FOR YOUR COPY TODAY!

B/W CONTROLLER CORPORATION

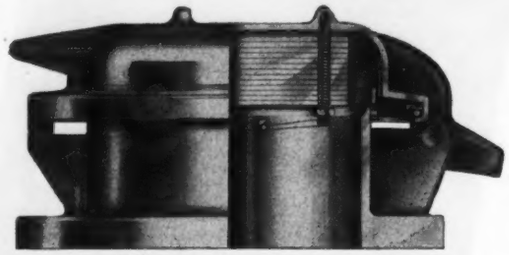
2204 E. Maple Road, Birmingham, Mich.

When inquiring specify CP A3968 — see handy form pages 2-3

INSTRUMENTS

Vertical Vent Valve With Gasket Of Cantilever Design

Gasket material or sheet neoprene or synthetic rubber; sizes 2 to 24 inches



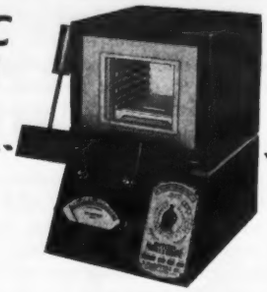
Valve operates 2-16 oz. pressure

Uses — This vertical vent valve Model VVH may be used on atmospheric storage tanks, with that general classification including vessels operating up to one pound. Thousands of such tanks are located at refineries, bulk plants, chemical plants to store gasoline, alcohol, benzol and other volatile liquids.

Features — The sealing medium is a flexible neoprene or synthetic rubber gasket of patented cantilever design. Right up to the set pressure of the valve ingenious use is made of the pressure in the tank to seal the valve tightly against leakage. When pressure in the tank build up high enough to lift the valve cover (this occurs at the set pressure of the valve) the rising cover pulls the gasket from its tight mating with the body, and relieves pressure from the tank.

REVOLUTIONARY

AUTOMATIC PRECISION CONTROL



Easy to operate for:

- **Tempering**
- **Annealing**
- **Wax Elimination**

Never before has this large-furnace precision automatic control been available in a laboratory furnace. It's startling! It's unequalled! Any desired temperature in the furnace range can be set and automatically maintained with precision. I.D. 4¼" x 3⅝" x 4½". 115 A.C. operation. Heat range 325° to 1600° F. Ask for catalog on larger furnaces.

HUPPERT MODEL 2 DELUXE

$76.50

K. H. HUPPERT CO.

6822 COTTAGE GROVE AVE. CHICAGO 37, ILL.

When inquiring specify CP A3970 — see handy form pages 2-3

Sheldon LABORATORY EQUIPMENT



Typical Industrial Laboratory

SHELDON'S long, continuous, and successful experience; efficient planning service, and unsurpassed production facilities combine to provide the utmost in utility and economy in Laboratory Equipment. Let SHELDON Planning Engineers help you plan your research and control Laboratories.

SHELDON'S new Industrial Catalog for Chemical and Physical Laboratory, X-ray, Metallographic and Dark Room Fixed Equipment is now on the press. Reserve your copy today.

E. H. SHELDON & COMPANY

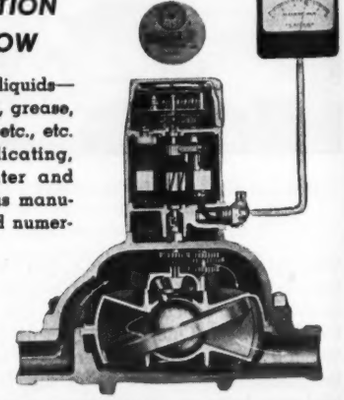
MUSKEGON, MICHIGAN

When inquiring specify CP A3969 . . . see information request blank, pgs. 2-3

NEW HAYS VERIFLOW TOTALIZING-INDICATING METER

Featuring

REMOTE INDICATION OF RATE OF FLOW



For practically all liquids—tar, molasses, crude oil, grease, paint, varnish, syrups, etc., etc. —for measuring, indicating, totalizing flow of water and chemicals in continuous manufacturing processes and numerous other uses. Its remote indicating feature is new—get the complete story.

SEND FOR BULLETIN 46-766

The HAYS CORPORATION

COMBUSTION INSTRUMENTS AND CONTROL

MICHIGAN CITY, INDIANA, U.S.A.

When inquiring specify CP A3971 — see handy form pages 2-3

When pressure within the tank drops below the valve setting the cover falls to rest upon the supporting lugs and once more the cantilever gasket seals the valve tightly.

Description — The VVH valve is made in sizes 2" to 24". The 2", 3" and 4" valves can be set to open at pressures from 3 oz. to 16 oz., while the larger valves may be set from 2 to 16 oz. Pressure setting may be changed by adding or removing weights inside the cover. All valves open at ½ oz. vacuum. Body is cast iron, cover cast aluminum; weights are of lead.

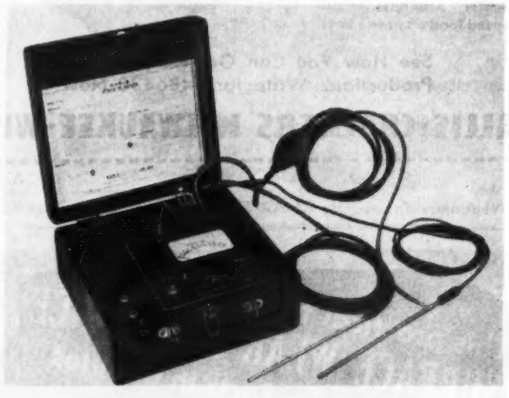
BLACK, SIVALLS & BRYSON, INC., Dept. CP, Kansas City, Mo.

When inquiring specify CP A3972 — see handy form pages 2-3

★

Stack Analysis Instrument Shows All Readings on One Meter

Hose, aspirator, tubes all in one case; current shut off when cover is closed



Portable battery operated "Stackometer"

Uses — For indicating CO_2 stack temperature and draft readings; providing for accurate and scientific measurement of combustion efficiency of boiler. Slight air leaks are reflected in dial readings as are excessive stack temperatures.

Features — All readings are taken on one meter. CO_2 percentage readings are obtained from gas samples collected through a hand aspirator bulb. Stack temperatures are read on the same dial, obtained electrically from a thermocouple mounted in the gas sampling tube. Draft measurement is obtained through a separate tube but read on the same meter. The efficiency or inefficiency of a draft stabilizer can be instantly detected. Another feature is a safety-switch which automatically shuts off battery current on closing the cover of the instrument box. Complete portability is obtained by having sampling hose hand aspirator, thermocouple sampling and draft sampling tubes all located in one case.

Description — The meter dial reads 0 to 20% CO_2 in black figures, temperature on a red scale 0 to 1000° F. and draft in tenths of inches of water on a green scale. Electrically operated, the only maintenance is replacement of batteries, which are of standard flashlight type. Case is 12" x 13" x 5". Weight complete 11 lbs.

DAVIS EMERGENCY EQUIPMENT CO. INC., Dept. CP, 45 Halleck St., Newark 4, N. J.

When inquiring specify CP A3973 — see handy form pages 2-3

What Are the Advancements That Make

THE BECKMAN IR-2 INFRARED SPECTROPHOTOMETER

so Outstanding?



ONLY THE BECKMAN IR-2 COMBINES SUCH FAR-REACHING ADVANCEMENTS AS THESE . . .

HERMETICALLY SEALED
No costly air-conditioning required. Unaffected by humidity or atmospheric contamination.

INTEGRAL AMPLIFIER
No extra amplifier needed for recording. IR-2 can be direct-connected to standard recorder.

DIRECT-READING SCALES
Wavelength scale reads directly without curves, charts or computations. Percent Transmission scale reads directly.

CONSTANT RADIATION
Photoelectronic regulator maintains radiation constant within 0.1%.

ZERO DRIFT ELIMINATED
Greater accuracy; simpler, faster operation.

FALSE ENERGY ELIMINATED
Negligible stray light effects assure increased accuracy.

GALVANOMETERS ELIMINATED
Beam-modulation, bolometer and electronic amplifier eliminate vibration, temperature and non-linearity difficulties associated with galvanometers.

TEMPERATURE CORRECTIONS ELIMINATED
Entire instrument thermostated.

UNUSUAL VERSATILITY
Light sources, cell holders and other elements are interchangeable for a wide range of applications on gases, liquids and solids.

The above are only a few of many IR-2 innovations. Write for full details.

Check them over...

THE BACKGROUND of experience behind this Beckman instrument is unmatched. From the first-hand experience, user suggestions and the practical knowledge gained in proving infrared equipment for industrial use, National Technical Laboratories has developed the new Model IR-2. It was Beckman infrared equipment, developed in close cooperation with leading petroleum scientists, that made possible the development of the first accurate, analytical methods for hydrocarbon analysis which contributed so much to the success of the butadiene and aviation gasoline industries. Today, in these and other industries throughout the world, there are large numbers of Beckman Infrared Spectrophotometers in use—a fact which has contributed immeasurably to the "know how" behind every Beckman instrument.

It is the continuing aim of National Technical Laboratories to produce instruments which combine the best previous achievement with unique developments which further extend the application of instruments in industry. The IR-2 Spectrophotometer again attains this goal. It integrates well-known basic principles of optics with new developments in electronic circuit design, many of which originated in our own laboratories in the production of thousands of scientific instruments. The result is an Infrared Spectrophotometer with increased convenience and versatility that greatly extend the usefulness of infrared methods.

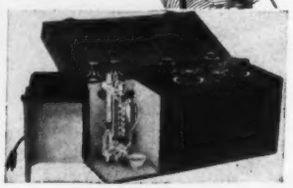
There is no other instrument like the Beckman IR-2. Check over the unique features outlined at left. They represent design advancements which mean greater versatility, higher accuracy, more speed and convenience in all types of infrared analytical work. A careful comparison with other infrared equipment will verify how much more the Beckman IR-2 provides.

After checking over the features outlined here let our technical staff further explain them and other important advantages. Your inquiry will bring you complete information. Beckman Instruments, National Technical Laboratories, South Pasadena, California.

BECKMAN **STRUMENTS CONTROL MODERN INDUSTRIES**

When inquiring specify CP A3974 . . . see information request blank, pgs. 2-3

READY FOR pH DETERMINATION



PLUG INTO ANY 110 VOLT A. C. OUTLET

The Cambridge pH meter is always "ready-to-go". It may be turned on continuously during the day so that it is available for pH measurements immediately without waiting through a warming-up period to obtain stability. Another feature of the *Cambridge* is the Electron-Ray Null Indicator. It permits quick, hairline adjustment and cannot be injured by hasty or inexperienced mis-manipulation. *Send for Bulletin 901 E.*

LABORATORY MODEL
- Range 0-14, 0-1200 mv.
- Accurate to .02 pH
- Sensitive to .005 pH
- Reproducible to .01 pH

INDUSTRIAL MODEL
- Range 0-14
- Accurate to .05 pH
- Sensitive to .01 pH
- Reproducible to .02 pH

CAMBRIDGE INSTRUMENT COMPANY, INC.

3706 Grand Central Terminal, New York 17, N. Y.

When inquiring specify CP A3975 — see handy form pages 2-3

INSTRUMENTS

Electronic Process Timer For Periods From 1/20 Second On

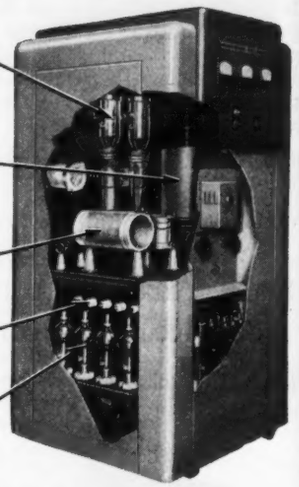
For single actuation as well as for sequence timing and recycling in continuous operation

Uses — The function of this electronic process timer is to close or open an electrical circuit for an adjustable time interval. It is for the control of industrial processes and meets the requirements of this service through accurate and dependable performance. The preferred field of application of the timer is the timing of short intervals, such as few seconds or fractions of a second, where timers incorporating clockwork or motor may not be sufficiently accurate.

Features — The following features are made possible by the purely electronic nature of this timer. (1) Timing from 1/20 second up — the timer being adjustable to upon or close a circuit for an interval as short as 0.05 second. (2) AC/DC operation — operating on 100-130 volt AC of any frequency and also on 100-130 volt DC. (3) Immediate automatic resetting. After completing the timing period, it does not take more than 1/25 second for the timer to be ready for the next actuation. This makes the timer particularly suitable for fast recycling operations.

Description — The timer is available for the following timing ranges: 0.05 — 0.5 seconds (Mod. 950); 0.5 — 5.0 seconds (Mod. 951); 5 seconds — 50 seconds (Mod. 952). It is also available as a double range timer for 0.05 — 5.0 seconds (Mod. 960) and 0.5 — 50 seconds

Here's A-C's New ELECTRONIC HEATER... A Forward Step In Hardening, Brazing, Annealing!



STURDY, Long-Life Oscillating Tubes—fully protected by overload relays, water filters and pressure switches.

NEW Coupling System, developed by A-C, keeps losses low, permits adaptation to most applications without use of radio frequency transformers.

CHOKE COIL protects rectifier tubes from damage by high frequency radio currents.

HEAVY-DUTY Transformer for handling overloads, other extreme operating conditions.

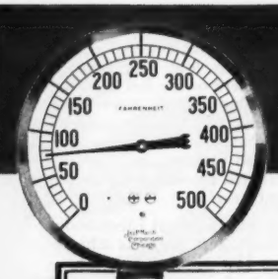
3-PHASE Rectifying System obtains maximum power from electronic heater, prevents unbalanced load on power lines.

See How You Can Get Fast, Uniform Production. Write for 14B6430 Now!

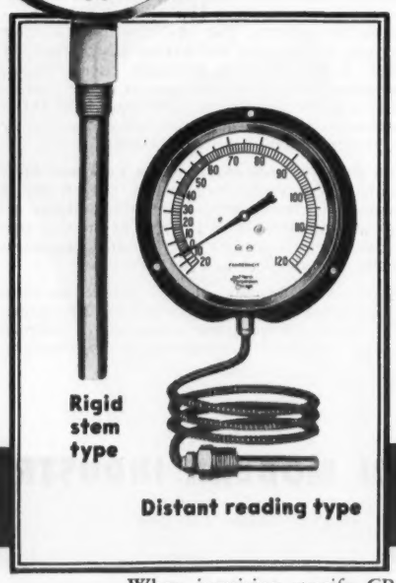
ALLIS-CHALMERS MILWAUKEE·WIS.

A 1989

When inquiring specify CP A3977 — see handy form pages 2-3



Use a dial thermometer you can TRUST!



For that critical process, the dial thermometer must tell the truth and keep right on telling it! In the opinion of hundreds of users this means that it must be a thermometer bearing the name, Jas. P. Marsh.

The Marsh Bourdon tube-type Dial Thermometers illustrated here give extremely delicate response to temperature changes. Yet they are ruggedly built to maintain their accuracy under all operating conditions. Made in both gas-filled and vapor tension types, Marsh Dial Thermometers cover all application requirements and practically all temperature ranges. They are also produced in bi-metal types for applications where this construction is desirable.

The Thermometer with the "Recalibrator"

All Marsh bourdon tube-type Thermometers have the Marsh "Recalibrator." When an abnormal condition knocks a Marsh Thermometer out of adjustment, a twist of the "Recalibrator" screw quickly restores its accuracy. The correction is basic, actually re-calibrating the instrument by restoring proper relation between the bourdon tube and the movement.

Write for complete information regarding Marsh Thermometers.

JAS. P. MARSH CORPORATION, 2095 Southport Avenue, Chicago 14, Ill.

MARSH DIAL THERMOMETERS PRESSURE GAUGES

When inquiring specify CP A3976 . . . see information request blank, pgs. 2-3

This practical test for SURFACE WEAR RESISTANCE ...provides the facts in minutes



The TABER ABRASER is easy to operate

. . . gives a permanent, accurate rating

Duplicating—in measurable terms—the rubbing abrasion encountered in actual service, the Taber *Abraser* enables you to determine in advance the inherent surface wearability of paints, lacquers, plating, textile, leather, rubber, metals and many other materials. Saves time required for wear performance tests—gives a permanent, accurate value rating for research studies as well as for production control.



YOURS on request — Manual explaining fully the Taber Method and the reasons why it pays to pre-test. (Also included—brochure on stiffness and resilience testing with the Taber V-5 Stiffness Gauge.)

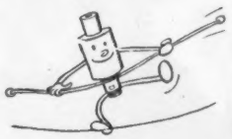
TABER INSTRUMENT CORP.
111Cp Goundry St., North Tonawanda, N.Y.

The Taber Test *Proves* What Wears Best!

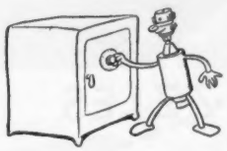
When inquiring specify CP A3978 — see handy form pages 2-3

Put these features to work for YOU

BALANCED ROTOR



POWER SEAL



NEW FORM CUTTERS



COMPLETELY CLEAN TUBES FASTER WITH-OUT TUBE DAMAGE

Balanced Rotor — eliminates friction in the Airetool motor so that all power is directed against the load.

Power Seal — increases motor efficiency, prevents power waste, produces constant torque at low speeds, eliminates dead centers and allows motor to be loaded down to 50 rpm without stalling.

New Form Cutters — quickly and thoroughly clean tubes without tracking or damage to tubes.

. . . these are the features found

EXCLUSIVELY IN AIRETOOL TUBE CLEANERS

that make possible faster, more thorough cleaning of tubes without damage.

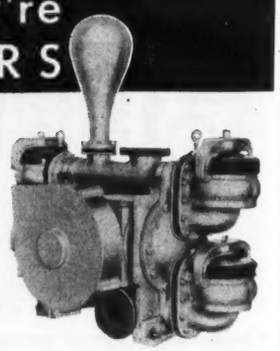
Airetool tube cleaners are offered in a variety of styles and sizes to efficiently meet every tube cleaning problem. Made for tubes ½ in. to 24 in. I.D.; straight or curved. Write the Airetool Mfg. Co., Dept. 500, Springfield, Ohio, for

FREE HELPFUL BULLETINS

AIRETOOL MANUFACTURING COMPANY

When inquiring specify CP A3979 — see handy form pages 2-3

Rough on Your Pumps? Not if They're SHRIVERS



for CORROSIVES ABRASIVES SLURRIES SLUDGES PASTES

If it has been your sad and expensive experience that the material your pumps must handle cuts their service life or causes frequent shut-down for repairs, then it's time you investigated the pump that "can really take it." Positive action — perfectly lubricated — no contamination of either the fluid handled or the working mechanism by the fluid — easy to clean and maintain; that's why Shriver Diaphragm Pumps last longer on tough jobs. There's a size and type for your difficult product. Write for Bulletin No. 121 to T. Shriver & Company, Inc., 846 Hamilton Street, Harrison, N. J.

No Packings
No Leakage
No Contact between Fluid and Operating Parts
•
All Parts Contacting Fluid Made of Any Metal or Rubber Lined.

SHRIVER DIAPHRAGM PUMP

When inquiring specify CP A3980 — see handy form pages 2-3

INSTRUMENTS

(Mod. 961). Timers with special timing ranges between 0.05 seconds and 50 seconds (1:10 ratio from shortest to longest for single range. 1:100 ratio for double range) can be furnished on order. A special timer of this kind may, for instance, be furnished for 0.1 sec. or for 1-10 sec. if it is provided with a single range or for 0.1 — 10 seconds if it is provided with a double range. The timing period is set by means of a selector knob on the panel. An extension of the knob moves over the dial which has forty-five division lines so that accurate setting is made possible. The double range models, in addition to the selector knob, are provided with a range switch. The panel in addition to the controls mentioned carries a main switch for placing the timer in stand-by position. It also carries a push button and an AC-DC switch. While the timer can be plugged into 110 volt AC or DC irrespective of this switch, it is better to keep the switch in position which corresponds with the kind of current being used. The load outlet is a standard female socket as used for house current. The timer can be furnished with this socket connected for "normally open" or "normally closed" as well as with the contacts carrying 110 volt (powered) or with the contacts opening or closing an eternal circuit, without carrying any supply voltage (unpowered). The panel also carries a socket for remote control. This is a polarized two-contact female socket. The timer is actuated either by the push-button or by remote control. For the latter purpose, it is only necessary to connect to the remote control socket of the timer a foot pedal or machine operated switch or a relay which closes the circuit connecting the two contacts of the socket. While the outlets and switches described permit the timer to be operated as a single unit, two or more timers can also be connected for operation in sequence. An auxiliary hold relay is available for the purpose of closing (or opening) a circuit at the end of a timing period. The timer is housed in a crackle finished steel casing 6" x 5" x 9". The electronic tubes are easily accessible by removing a perforated cover on top of the timer. Complete details, including drawings, diagrams and tabulated specifications are contained in bulletin, — Number 950.

PHOTOVOLT CORPORATION, Dept. CP, 95 Madison Ave., New York 16, N. Y.

When inquiring specify CP A3981 — see handy form pages 2-3

★

Engineering and Operating Data on Constant Voltage Transformers

A new bulletin, "Electrical Power, Disciplined", just released, contains a complete discussion of the construction and operating theory of the Constant Voltage Transformer, engineering and operating data, a survey of line conditions that make Constant Voltage Transformers necessary and a section devoted to new developments resulting from this company's war-time experience. In addition, it contains many suggestions pertaining to the practical use of Constant Voltage Transformers as a built-in component of electronic and electrically operated instruments and equipment. The catalog section lists 31 standard types in capacities ranging from 15VA to 10,000VA with complete electrical and mechanical specifications. A copy of the bulletin, CV-102 is available on request.

SOLA ELECTRIC CO., Dept. CP, 2525 Clybourn Ave., Chicago 14, Ill.

When inquiring specify CP A3982 — see handy form pages 2-3

Lower Distribution Costs For Your Products



Ready now! New Bulletins describing *Industrial Logistics*— today's method of transporting your Plant loads in Boxes, Barrels, Bags or Bales—in Master Units—on Pallets or Skids —at increased speed and greatly-reduced costs.

Your nearby Elwell-Parker Materials-Handling Consultant will gladly deliver copies to you upon request. The Elwell-Parker Electric Co., 4239 St. Clair Ave., Cleveland 14, Ohio.

ELWELL-PARKER
POWER INDUSTRIAL TRUCKS
Established 1893

When inquiring specify CP A3983 — see handy form pages 2-3

WIRE PRODUCTS

STRAINERS
•
FILTERS
•
DIPPING BASKETS
•
WIRE CLOTH
•
FABRICATED PARTS



Adequate facilities available to handle your requirements for wire-mesh and wire fabricated products. Every operation from drawing and weaving to finished product is done in a Jelliff plant — service and quality assured.

***Lektromesh* the mazing product of 1,000 uses — electrolytically deposited wire mesh in varying sizes and patterns. Write for literature.**

THE C. O. JELLIFF MFG. CORP.
42 Pequot Road, Southport, Conn.

When inquiring specify CP A3984 — see handy form pages 2-3

Speed up FILTERING by as much as 400%

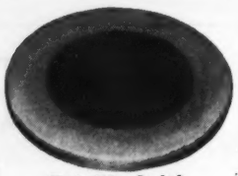
with this new combination U. S. Suction Filter and "Filterstone" Porous Filter Plates



Fig. 706 Two-piece Suction Filter with Loose Plate.



Fig. 709 Sectional Unit Filter.



Resin Edge-Sealed "Filterstone."

"Filterstone" Porous Filter Plates are strong, sturdy, completely corrosion-resistant. Used in conjunction with "U. S." chemical stoneware Suction Filters, they assure an absolutely clear filtration of essential oils, drugs, extracts, lotions, medicines, dyes, perfumes, etc.... *and up to 400% faster filtering!* "Filterstone" Porous Plates do not clog easily — can be washed out quickly.

"U. S." chemical stoneware Suction Filters are made from Ceratherm-500 heat-shock resistant stoneware, proved more than 27% stronger than ordinary stoneware bodies. *"U. S." Suction Filters will withstand a complete vacuum.*

"U. S." Suction Filters are normally stocked in five styles and in capacities ranging from five gallons to one hundred gallons, with either integral or loose support plates. "Filterstone" Porous Filter Plates are available in sizes to fit "U. S." Suction Filters, and in three different porosities: fine, medium and coarse.

WRITE TODAY for sizes and styles in stock.

PROCESS EQUIPMENT DIVISION

U. S. STONEWARE

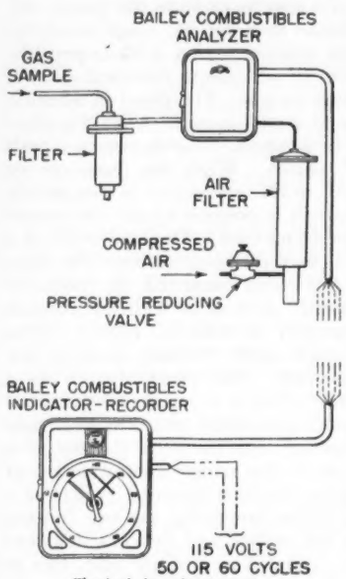
Since 1865 • Akron, Ohio

When inquiring specify CP A3985 — see handy form pages 2-3

INSTRUMENTS

Combustibles Analyzer-Recorder

Indicates, records, controls combustibles content of gaseous mixture



Typical installation of Combustibles-Recorder

Uses — This automatic analyzer and recorder has been developed for indicating, recording and controlling the combustibles content of a gaseous mixture. It has been successfully applied to precision control of furnace atmospheres, chemical processes, combustibles measurement in the petroleum, metallurgical, automotive, and chemical industries.

Features — The analyzer and recorder provide a continuous graphic analysis almost instantly. The recorder and analyzer are calibrated to have an overall accuracy of less than 1/4 per cent of actual combustible content and the unit is sensitive to changes of less than 0.5 % combustible content. Installation easily made as analyzer or recorder do not need accurate leveling or special mountings. Sturdy construction. No galvanometer or other moving parts. Ample power is available in recorder for operating control and alarm contacts in addition to recording pens. Recorder can incorporate record of oxygen content if desired.

Principle of Operation — The analyzer operates on the catalytic combustion principle, using a Noble Metal Catalyst-Filament. Measured quantities of gas sample and clean compressed air, maintained constant by internal regulating valves, are passed over the catalyst-filament, and the heat liberated by combustion changes the filament temperature in proportion to the combustibles content of the sample. The filament forms one leg of a Wheatstone and any unbalance in the circuit is magnified through an electronic amplifier. A slidewire in the recorder is adjusted to restore the balance, and the recording pen is mechanically connected to the slide wire. It may be calibrated directly in terms of per cent Combustibles Content of Mixture Ratio, or other desired terms.

Application — Combustibles Recorder-Controllers applied to process furnaces operating with reduced atmospheres permit fine measurement resulting in greater informity and higher quality of product and increased furnace economy. Variable fuel quality does not effect the accuracy of control on installations of this type. Plants in the chemical industries, as well as other operations having processes where gases contain combustibles, find the continuous graphic analysis of such recorders a valuable addition to instrumentation.

Description — The recorder is similar to the maker's standard recorders, — and all electrical components are inter-

a problem in selection Made Easy



SPRAY NOZZLES

Whatever the application, whatever the type spray nozzle required, selection of the *exact* nozzle is now an easy job. The Spraying Systems catalog gives complete specifications on thousands of nozzle types and sizes. See how the right nozzle can improve your operations. Write for Catalog No. 22.



SPRAYING SYSTEMS COMPANY

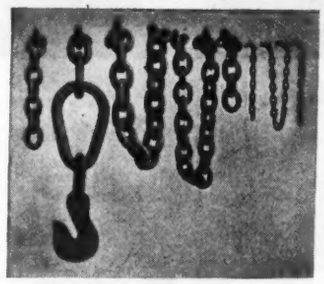
4037 West Lake Street • Chicago 24, Illinois

SPECIALISTS IN THE DESIGN AND MANUFACTURE OF SPRAY NOZZLES

When inquiring specify CP A3986 — see handy form pages 2-3

For

CORROSION RESISTANCE



Plus

Safety
Strength
Long life
Light weight
Low maintenance

Chains made of Monel* are more than just *corrosion-resistant.*

These — designed by *The Youngstown Welding & Engineering Company,* Youngstown, Ohio — provide the same service and safety as ordinary types that are up to 25% heavier.

Monel's high tensile strength (80,000-95,000 psi for hot-rolled bar) and its inherent toughness enable it to withstand the strains, the bumps and jolts that fracture less ductile metals.

Sold under the trade name of WELDCO, this Monel chain is made in all standard sizes from 1/4" to 1 1/4". A complete line of accessories — hooks, lifting links, open links and U bolts — is also available.

Let WELDCO Monel chain help you maintain production, reduce safety hazards and cut costs.

The International Nickel Company, Inc., 67 Wall St., New York 5, N. Y.

NICKEL (INCO TRADE MARK) ALLOYS

MONEL* "K" MONEL* "S" MONEL* "R" MONEL* "KR" MONEL* INCONEL* NICKEL "L" NICKEL* "Z" NICKEL*

*Reg. U. S. Pat. Off.

When inquiring specify CP A3987 — see handy form pages 2-3

TEMCO ELECTRIC FURNACE

MODEL GRP



FOR HEAT TREATING SMALL TOOLS AND PARTS, TESTING AND LABORATORY WORK.

FAST HEATING—1500° F. in 30 min. Temperature controlled by four point switch set for 500°, 1000°, 1500° and 1850° F. These settings easily changed by adjusting bands on rheostat coils. Dependable indicating pyrometer is calibrated in both Fahrenheit and Centigrade scales.

UNIFORM TEMPERATURE—Heating element of highest quality nickel-chromium alloy forms a continuous coil and is embedded in sides, top and bottom of muffle chamber. This construction assures uniform temperature and protects element from damage and oxidation. Complete muffle unit is replaceable.

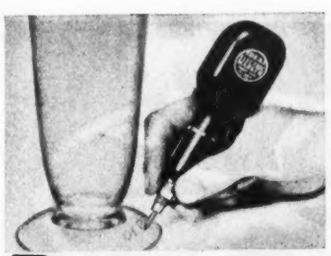
PORTABLE—Body is aluminum. Total weight, 17 lbs. Muffle chamber, 4" x 3¼" x 3¼"; furnace overall, 9¼" x 13½" x 10½". Supplied with attachment cord. Operates on A.C. and D.C., 115 or 230 V. (*be sure to specify voltage*). Max. power consumption 1200 watts.

Model GRP complete, 115 V.....$42.50; 230 V.....$47.50

See your supply house or write

THERMO ELECTRIC MFG. CO., 476 W. Locust St., Dubuque, Ia.

When inquiring specify CP A3988 — see handy form pages 2-3



EASILY MARKS

on

Alloys	Plastics
Steel	Ceramics
Iron	Glass, Etc.

IDEAL ELECTRIC MARKER

New, dependable tool, built to Industrial Standards, permanently marks everything —important identification on parts, products, materials, test tubes, beakers, etc. Powerful marking stroke operates like small electric hammer. Light in weight—(weighs only 10 oz.) and shaped to fit the hand, it is as easy to use as a pencil.

Available with Diamond Point

IDEAL has the most complete line of Etchers and Markers on the market

Industrial Products Division

IDEAL Industries, Inc.

(formerly IDEAL Commutator Dresser Co.)

5137 PARK AVENUE **SYCAMORE, ILLINOIS**

1647 *Sales Offices in Principal Cities*

When inquiring specify CP A3989 — see handy form pages 2-3

changeable with these other units. Internal fluorescent illumination and large dial indicator are available. The recorder can be furnished with either one or two pens recording. On two pen recorders each record is entirely independent of the other so that no switching equipment is required, and no time delay is introduced. Two separate analyzers are required with a two-pen recorder. The Combustibles Recorder is furnished to operate on 115v., 60 or 50 cycle current. Its power requirements are approximately 100 watts for single pen and 200 watts for a two pen recorder. Pneumatic control or electric alarm contacts may be provided for both one and two pen recorders.

BAILEY METER CO., Dept. CP, 1050 Ivanhoe Road, Cleveland, Ohio

When inquiring specify CP A3990 — see handy form pages 2-3

★

5 Inch Industrial Thermometer

Useful where space is limited and instruments are subject to vibration



Uses — Developed for the U. S. Navy this sturdy, versatile 5" mercury-in-glass thermometer is now available for industrial use. It is designed for installation where space is limited and instruments are subject to unusual vibration. It is especially suitable for such applications as air compressors, diesel engines, lubrication oil lines on motors, generators, reduction gears, and small diameter brine, water and steam lines.
Feature — Easy reading Binoc tubing encased in compact, one-piece case.
Description — There are a variety of stem forms: Straight 90 degree angle; 90 degree right side angle; 90 degree left side angle or 45 degree reclined (135 degree oblique) angle. These permit the selection of the proper thermometer for correct installation and greatest ease in reading. Ranges available are: Minus 40 to 100 degrees F.; 30 degrees to 180 degrees F. and 200 degrees to 500 degrees F. Additional information is available upon request.

TAYLOR INSTRUMENT COMPANIES, Dept. CP, Rochester 1, N. Y.

When inquiring specify CP A3991 — see handy form pages 2-3

★

100 Amp. Frame Circuit Breaker

Enclosures available for hazardous applications

Uses — This new ML2 100 ampere frame circuit breaker has recently been introduced. Ratings: 15 to 100 amperes — 600 volts AC., 50 to 100 amperes — 250 volts AC-DC., 2 and 3 pole.
Description — Dust resisting sheet steel enclosures with front operated handle are available for 3 and 4 wire solid neutral applications in addition to 2 and 3 pole devices. Weatherproof, dust-tight and explosion resisting enclosures are also available for Class 1 Group D and Class 11 Group G hazardous location applications. The breaker is also furnished for panel boards. Bulletin CA — 3500 — ML2B on request.

SQUARE D CO., Dept. CP, 606 Rivard St., Detroit 11, Mich.

When inquiring specify CP A3992 — see handy form pages 2-3

"REPEATS!"

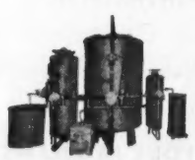
Here's how one De-ionizing Unit leads to another, in leading plants

MFR. A	3 UNITS TO DATE	Feb. 26, 1942: one 1,000-gph unit... Mar. 25: 1944: one 1,500-gph unit... July 11, 1945: one 3,000-gph unit
MFR. B	5 UNITS TO DATE	Aug. 7, 1943: one 500-gph unit... Feb. 9, 1944: one 360-gph unit... June 23, 1944: one 360-gph unit... Dec. 6, 1944: one 180-gph unit... Jan. 4, 1945: one 50-gph unit
MFR. C	7 UNITS TO DATE	April, 1944: one 180-gph unit... June, 1944: one 200-gph unit... Nov., 1944: one 180-gph unit... Sept., 1945: four 300-gph units
MFR. D	14 UNITS TO DATE	Nov., 1944: two 1,500-gph units... Feb., 1945: two 1,500-gph units... Feb., 1945: one 750-gph unit... June, 1945: one 1,500-gph unit... July, 1945: one 12-gph unit... Aug., 1945: three 3,000-gph units... Sept., 1945: four 1,500-gph units

A Nationally known pharmaceutical concern
B Manufacturer of electronic tubes, radio tubes, etc.
C One of the largest electrical manufacturers
D Distillers
Names and installation details on request

De-ionized Water replaces distilled water in more and more plants these days . . . and when it does, it's not long before additional units are ordered! Above are unit re-orders, from our records . . . indicating the quality of ILLCO-WAY equipment and the efficiency of its performance. ILLCO-WAY De-ionizing Units are daily producing pure water comparable to that obtained by distillation. No fuel, no cooling water required, no periodic dismantling for cleaning . . . Write for literature today!

ILLINOIS WATER TREATMENT COMPANY
849-3 Cedar Street, Rockford, Illinois
7310-G3 Empire State Bldg., New York City



TYPICAL INSTALLATION
ILLCO-WAY De-ionizing Units produce water comparable to that produced by distillation... *at 1% to 10% of the cost of distilled water!* Flow rates range from 12 gph (laboratory unit) to 500,000 gph (industrial unit).

Water Treatment Engineering

TESTED IN THE LABORATORY · ILLCO-WAY · PROVED IN THE FIELD

When inquiring specify CP A3993 — see handy form page 2-3



The John Van Range Co.

Specializing in Fabrication of

STAINLESS STEEL EQUIPMENT

for the

Chemical and Processing Industries

Also manufacturers of Monel Metal, Aluminum, Copper, Zinc and Steel Equipment. Founded in 1847, our Experience should be invaluable to Manufacturing Chemists, Food, Dairy, Drug and Textile Processing Industries.

CONSULT US ON YOUR PROBLEMS

SEND US YOUR INQUIRIES

The John Van Range Co.

EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD

Division of The Edwards Manufacturing Co.

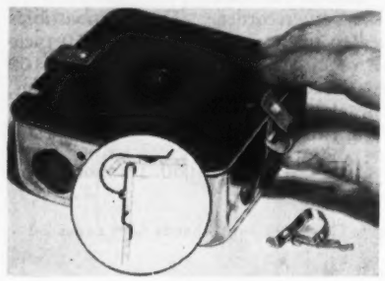
302-342 CULVERT ST. CINCINNATI 2, OHIO

When inquiring specify CP A3994 — see handy form pages 2-3

INSTRUMENTS

Spring Steel Box Cover Fastener

Self-retaining; snapped by hand into pre-punched holes in sides of box



Cover fastener eliminates screws

Uses — Eliminates all screws, nuts, rivets, as well as tools for attaching and available for use on sheet metal, die cast, plastic or plywood boxes of varying wall thicknesses. *Features* — Low cost, light in weight and quickly installed. Clips are entirely outside box with nothing inside to obstruct or damage wires or other equipment. *Description* — By merely flipping the clips into locked position, the cover is held firmly in place as shown in the illustration. To remove the cover, the clips are unsnapped by merely pushing them back with the thumb. Additional information is available on request. Inquiries should specify (1) materials; (2) thickness of box and covers; (3) whether cover is loose or close fitting box cover.

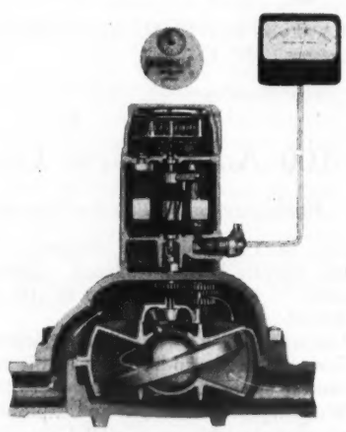
TINNERMAN PRODUCTS, INC., Dept. CP, 2149 Fulton Road, Cleveland 3, Ohio.

When inquiring specify CP A3995 — see handy form pages 2-3

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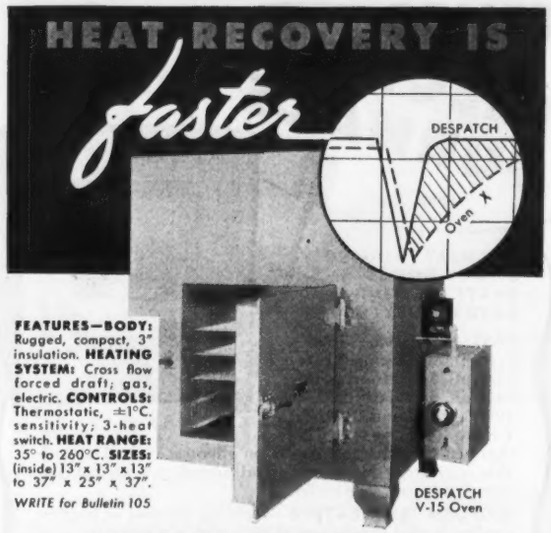
Measuring, Indicating, Totalizing Flow Meter; Pipe Sizes ½ Inch - 6 Inches

Rate of flow may be indicated at point remote from meter installation



Meter showing measuring piston, generator and register

Uses — For measuring, indicating and totalizing various liquids used in industry: cold and hot water, distillate fuel, bunker C fuel, gasoline, lubricating oil, vegetable oils, sodium brine, asphalt emulsions, paint and varnish, alcohol, solvents, fish oil, glycerine, syrups. The wide range of service of this instrument includes applications in testing hydraulically operated mechanisms, in determinations concerning flow of water in chemicals in continuous manufacturing processes, in proportioning, etc. *Features* — An important feature is the ability of this



in a DESPATCH LABORATORY OVEN

You'll get fast, accurate heat recovery — **in 2 to 8 minutes after loading** — in a DESPATCH Laboratory Oven. Allows more tests per day . . . provides needed data faster . . . helps ease your lab routine.

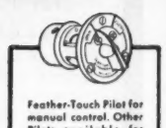
SEE YOUR LOCAL DEALER OR WRITE DIRECT

DESPATCH OVEN COMPANY MINNEAPOLIS 14 CHICAGO 1

When inquiring specify CP A3996 — see handy form pages 2-3



THERE isn't a single conventional valve handle in a whole carload of Clayton Valves . . . Why? Because Clayton Valves use hydraulic power to open and close. The "handle" of the Clayton Valve is a Pilot . . . actuated by the touch of a finger on a dial or by an electrical contact, hundreds of feet away from the valve itself . . . or by liquid level in a tank or tower. Where liquids, vapors or gases are carried in lines from ⅜" to 16" in size and under pressures to 300 psi., there is a Clayton Valve for the job. *Write for Engineering Data.*



Feather-Touch Pilot for manual control. Other Pilots available for electrical or float control.

CLAYTON VALVES *with* **FEATHER-TOUCH CONTROL**

ALHAMBRA, CALIFORNIA

When inquiring specify CP A3997 — see handy form pages 2-3

"Veriflow" meter to indicate the rate of flow at a point remote from where the meter is installed. This is in addition to the rate of flow indication and integrator which are integral with the meter itself. To secure the remote indication the generator is mounted on top of the flow meter, the same shaft operating both the generator and the totalizing register. No external source of electricity is required because the indicating meter measures the output of the generator and is calibrated to indicate the corresponding rate of liquid flow through the meter. The scale of the indicator can be calibrated to read in any values of flow desired such as gallons per minute.

Description — For each liquid, the materials, calibration and clearances of moving parts are varied as required for the conditions of operation. The outer casing is usually of cast iron, hot-dip galvanized, but may be cast bronze in most sizes, if required, as is the case of handling sodium chloride brine. Working parts are of hard cast bronze, except the measuring piston which may contain aluminum, iron, bronze, carbon or non-metallic composition as may be needed. Liquids must be free from solids in suspension except that a small amount of non-abrasive solids in fine or colloidal suspension may be handled without difficulty. Other solids must be removed by the trap strainer furnished with the meter. Measurement is volumetric, each complete movement of the measuring piston displacing a fixed volume of liquid. Meters are built in 12 basic sizes. Meter pipe connections range from ½" to 6" and in some meters a choice of two sizes of pipe connections is offered. Where required by the rate of flow to be measured, meters may be installed in lines larger or smaller than the meter pipe size without interfering with the accuracy or operation and without undue pressure loss. Complete details are given in Bulletin Number 46-766 which is available upon request.

HAYS CORPORATION, Dept. CP, Michigan City, Indiana.

When inquiring specify CP A3998 — see handy form pages 2-3

★

New Electric Interval Timer

Embodies greater precision in original assembly



Uses — To control the running time of process equipment; duration of exposure as in X-Ray machines; to close one circuit and open another at a predetermined interval; to operate signal after a certain time interval.

Features — Larger dials for easy reading and easy setting; sturdier frame construction.

Description — This new model E interval timer has simplified screw mountings designed to conform to standard instrument practice so that timers may be grouped on instrument panels in combination with other typical control and indicating instruments to complete the installation. Literature covering this and numerous other instruments in the maker's complete line of time control equipment is available on request.

R. W. CRAMER CO., INC., Dept. CP, Centerbrook, Conn.

When inquiring specify CP A3999 — see handy form pages 2-3

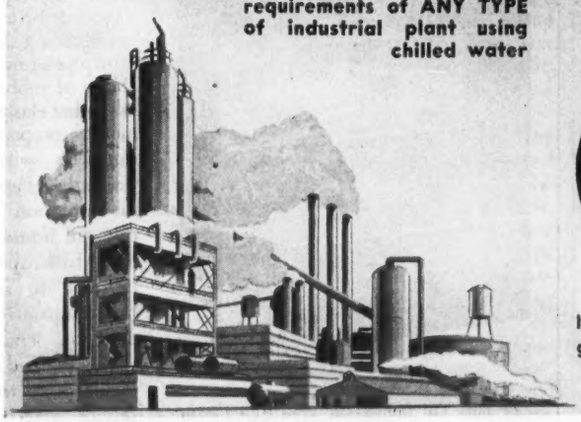
32° WATER
24 HOURS A DAY
No Icing Up!



JENSEN
RECIRCULATING CHILLED WATER UNIT

With
PATENTED SHORT REFRIGERANT GAS FLOW THAT INCREASES REFRIGERATION TONNAGE

- **Refrigerant gases escape instantly**
- **Short Gas Flow Principle permits use of high refrigerant temperatures—reduces compressor power and refrigeration costs**
- **High B.T.U. transfer**
- **Built in ANY CAPACITY — to meet requirements of ANY TYPE of industrial plant using chilled water**



JENSEN
Machinery Company, Inc.
BLOOMFIELD, N. J. ● OAKLAND, CALIF.

If you have a cooling problem, write us. Our engineers will gladly help you solve it. Descriptive literature sent on request.

When inquiring specify CP A4000 . . . see information request blank, pgs. 2-3

New Oven for Evaporation of Highly Volatile Solvents

Gas fired unit speeds work 500 percent in production of paper containers



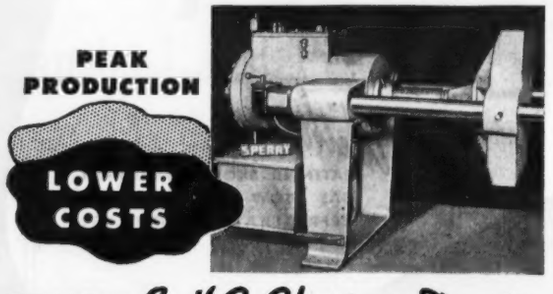
A standard, self-contained, box-type oven, with all heating equipment and ductwork built into the oven shell, has been designed for the high-speed evaporation and drying of solvents such as alcohol, acetone, naphthas and methyl-ethyl-ketone.

In the plant of a large paper container manufacturer, it has reduced drying time from 25 minutes to 5 minutes in the finishing of paper parts which are dipped in a solution consisting of 50 percent alcohol and 50 percent solid matter. It has also cut drying costs and has increased hardness of the finish, at the same time relieving brittleness.

Door sizes range from 3′ by 3′ to 5′ wide by 6′ high, with working depths from 3′ to 6′. The oven can be converted without delay for other types of drying, finishing, heat treating or heat processing. Controls are completely automatic.

THE INDUSTRIAL OVEN ENGINEERING CO., Dept. CP, 13825 Triskett Road, Cleveland 11, Ohio.

When inquiring specify CP A4001 — see handy form pages 2-3



SPERRY *EHC Closing Device*

For quicker, easier operation of filter presses . . . for lower costs and peak production . . . use the Sperry EHC closing device. It provides a positive precise means of closing the filter press, yet works so easily and simply a girl can operate it. It reduces wear and tear on filter cloths, minimizes operational hazards, and lessens fatigue.

The EHC Closing Device fits any make of press, with simple alterations. On Sperry Filter Presses, removal of the crosshead is all that is necessary. The hydraulic medium is oil operating in closed circuit, and the unit is powered by electricity.

Write today for complete information.

D. R. SPERRY & COMPANY, *Batavia, Ill.*

Filtration Engineers for Over 50 Years

Eastern Sales Representative:	*Western Sales Representative:*
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205 E. 42nd Street, New York 17	Merchants Exchange Bldg.,
Phone: MUrray Hill 4-3581	San Francisco 4, Cal. Phone: Do 0375

When inquiring specify CP A4002 — see handy form pages 2-3

Cell Checks Minimum Samples

Conductivity dip cell; ½ OD — 6″ long



Cell checks as little as 5 cc. in test tube

Uses — This micro-conductivity cell checks minimum samples, even as little as 5 cc. of solution in a test tube can be accurately checked.

Description — This diminutive dip cell is made of Pyrex glass, measuring ½″ outside diameter by 6″ long. The platinized platinum electrodes are so positioned that only a few cubic centimeters of sample are required. A flexible rubber sleeve protects the lead wires. This type of cell is particularly convenient in checking solutions in small original containers and sample bottles. A selection of cell constants from 0.1 up permits the checking of any solutions ranging from pure distilled water to fuming sulphuric acid, when the cell is used in combination with a suitably calibrated solu-bridge or a conductivity bridge. For convenience such cells are available in kits or sets of several constants.

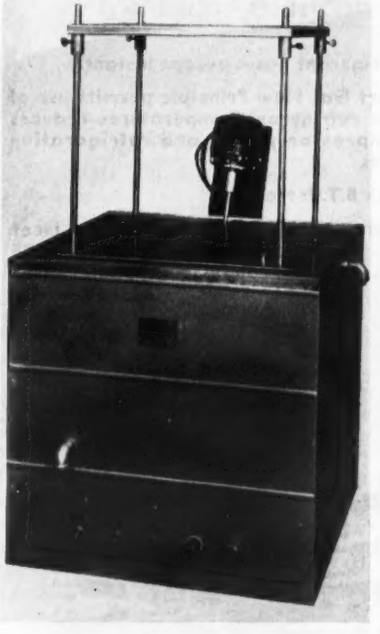
INDUSTRIAL INSTRUMENTS, INC., Dept. CP, 17 Pollock Ave., Jersey City, N. J.

When inquiring specify CP A4003 — see handy form pages 2-3

★

Oil Immersion Type Aging Bath

Temperature 35-200° *C. — accuracy + or — 1° C.*



24 Tube Oil Immersion Type Aging Bath

Uses — This bath is an oil immersion type for aging rubber or elastomers in oils or liquids in test tubes according to ASTM D-471 and D-375. These tests are intended for use in estimating the comparative ability of rubber and other elastometric compositions to withstand the effects of immersion in oils and liquids. The bath may be used to secure comparative data on which to base judgments as to the service quality and is very useful in research and development work.

Features — The bath can also be used for aging rubber



WESTON

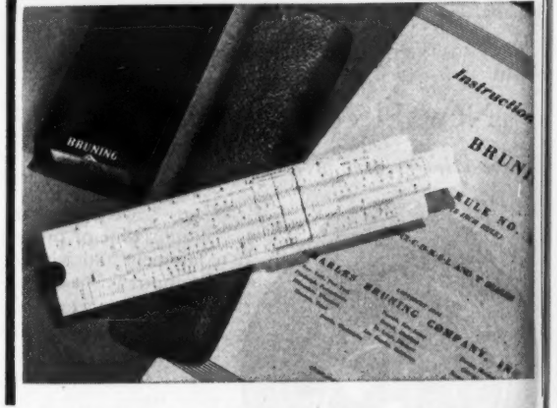
VOLT-OHMMETE

(MODEL 564—TYPE 3-C)

An extremely compact WESTON quality instrument with a broad selection of resistance and DC voltage ranges. Ranges available from pin-jacks molded internally with the panel, a toggle-switch connecting meter in circuit as a Voltmeter or Ohmmeter. Readily adjusted for variations in tery potential. For full detail Model 564, and on WEST Ohmmeters and Volt-O Milliammeters, send for li ture. Weston Electrical In ment Corporation, 618 Fre huysen Avenue, Newark 5, N

WESTON *Instruments*

When inquiring specify CP A4004 — see handy form pages 2-3



PRECISION 5-INCH POCKET SLIDE RULE

This Bruning 5-inch pocket slide rule sells for only $3.75 — yet it is a precision instrument, built for hair-line accuracy and maximum visibility. Made of durable plastic material, it is not affected by temperature changes. Graduations in numerals of the CI scale are in red to facilitate reading — A, B, CI, C, D, K, S, L and T scales adaptable for every type of service. Furnished in an attractive natural leather case, complete with instruction booklet. Charles Bruning Co., Inc., 4706-10 Montrose Avenue, Chicago 41, Illinois.

BRUNING *SINCE 1897*

When inquiring specify CP A4005 — see handy form pages 2-3

A MOISTURE TESTER

for Every Need

STEINLITE ONE MINUTE TESTER



The STEINLITE 40 gram One Minute Moisture Tester.

An experienced operator can make a moisture test with the Steinlite in one minute; almost any operator in two or three minutes. Calibrated against official oven methods. Operator requires no technical training. Tests wide variety of products — dehydrated foods. . . dried eggs, nuts, cocoa, etc. Sold on 10-day free trial basis. No money down.

OTHER TESTERS

Brown-Duvel especially suited where the volume of samples is small. Carter-Simon for laboratory tests on all materials. Brabender semi-automatic, the modern drying oven. Tag-Heppenstall for whole grain only.

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667 Brooks Building **Chicago 6, Illinois**

SEEDBURO EQUIPMENT COMPANY

When inquiring specify CP A4006 — see handy form pages 2-3



SUPERHEAT STEAM . . .
HEAT WATER, OIL, AIR
Electrically with

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CIRCULATION HEATERS

FAST! · DEPENDABLE! · ECONOMICAL!

CHROMALOX *Electric* Circulation Heaters are ready to install. Installation and operation costs are low. Built-in thermostats, manually or automatically operated, assure uniformly exact temperature control.

Consult your CHROMALOX Application Engineer for help in selecting CHROMALOX *Electric* Heaters to efficiently meet all your heat requirements. Write for his address and "100 Ways to Apply Electric Heat" booklet.

EDWIN L. WIEGAND CO. 7517 Thomas Blvd. Pittsburgh 8, Pa.

18-32 **CHROMALOX**

ELECTRIC HEAT FOR MODERN INDUSTRY

When inquiring specify CP A4007 — see handy form pages 2-3

INSTRUMENTS

and elastomers in air in test tubes. Condenser tube rack and test tube holders can be easily removed making it a serviceable bath for general utility work.

Description — Capacity of aging bath 24 test tubes, 38 mm dia. x 200 or 300 mm long. The test tubes are supported in an adjustable rack which can be readily moved when desired. Rack is made of stainless steel and rests directly in the bath. The top shelf of the rack guides the condenser in a vertical position. Temperature of bath is 35 to 200 degrees C, with an accuracy of plus or minus one degree C. Steel sheathed immersion heaters controlled by an adjustable, hydraulic thermostat heats the bath providing uniform, constant temperature. A ball bearing, fully enclosed motor stirrer provides complete circulation. Interior of bath is made of stainless steel. Exterior is of galvanized iron finished in high temperature aluminum. Three inches of glass wool insulation is provided on sides and bottom. Overall dimensions including rack: 49" high, 24" wide, 24" deep. Oil capacity 19 gallons. Support stand with upper and lower shelf can be furnished. It is 24" high. Electrical characteristics: 115 v., 60 c. AC.

PRECISION SCIENTIFIC CO., Dept. CP, 1736 N. Springfield Ave., Chicago, Ill.

When inquiring specify CP A4008 — see handy form pages 2-3

★

High Speed Sensitive Relay

Speeds up to 1000 operations per second; sensitivities down to ½ milliwatt



Relay sealed from moisture

Uses — This model has been especially designed to provide a sealed sensitive relay capable of speeds up to 1000 operations per second.

Features — The basic design of the moving elements is quite different from conventional relay design making possible the ultra high speed of which these relays are capable, at the same time assuring great reliability if operated in the usual speed ranges.

Description — Permanent hermetic sealing is provided by a glass envelope which surrounds all moving parts and protects them from moisture, dust and corrosive fumes. The relays are made only in single pole or double pole, single throw or double throw types and relay coils are supplied to meet specific conditions. With this new type of construction sensitivities down to ½ milliwatt are possible. Ratings up to 5 amperes can be obtained. Closing time can be less than one millisecond. The outside dimensions of the 115 volt AC ampere rating are three inches high and one and one half inch base diameter.

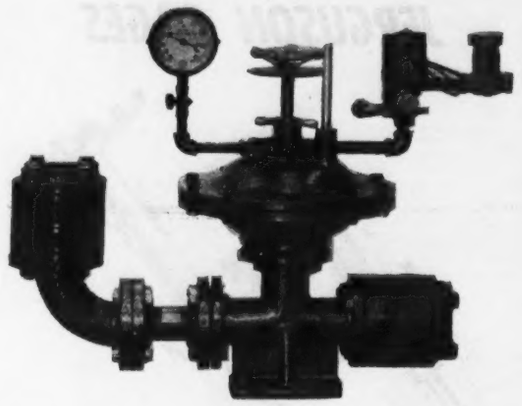
STEVENS-ARNOLD CO., INC., Dept. CP, 22 Elkins St., South Boston, Mass.

When inquiring specify CP A4009 — see handy form pages 2-3

O.D.S. *asks . . .*

"Are You Pumping Slurries or Sludges?"

"Are You Pumping Chemicals Requiring the Use of the Diaphragm-Type Pump?"



O.D.S. stands for Oliver Diaphragm Slurry Pump which has some very interesting and exclusive features making it ideal for handling products noted above.

1 . . . It has no mechanical linkage to the diaphragm, a feature helping greatly to keep down maintenance.

2 . . . It has no perforation in the diaphragm; or, to put it another way, no points of weakness.

3 . . . It is actuated by compressed air or vacuum or by a combination of both.

4 . . . All contact parts protected against corrosion and and erosion.

5 . . . It can be used for proportioning; flow can be metered, if desired.

The O.D.S. is worthy of a trial in your plant. It has too much to offer not to be given that trial. In writing for more information (Bulletin 309), please give details of your pumping problems.

We also manufacture the Olivite Acid-Handling Pump. Write for Bulletin 308.

OLIVER UNITED FILTERS INC.

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Canada: Sales & Manufacturing Representative E. Long Limited — Orillia, Canada

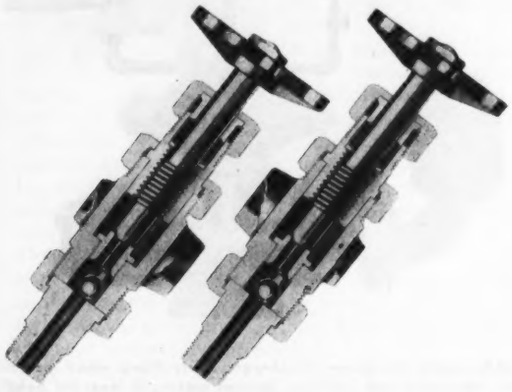
Factories: Oakland, Calif.—Hazleton, Pa.—Orillia, Canada—Melbourne, Australia

3-OUF-5

When inquiring specify CP A4010 — see handy form pages 2-3

JERGUSON VALVES

. . . for Your Liquid Level Gages . . . for Your JERGUSON GAGES



The words "& Valve" in our company name were not included just to make the name longer and more imposing. They cover an important division of our business . . . the design and manufacture of valves for gages for all liquid level indicating requirements.

Ever since we began to make gages years ago, we realized that the valves were as important as the gages themselves. We have put just as much engineering thought and manufacturing skill into our valves as into our gages.

Jerguson Valves are the ones to buy . . . for any liquid level gage installation. Always order them when ordering your Jerguson Gages. You can obtain any type valve desired: plain, automatic-closing, quick-closing, jacketed, offset.

We make gages and valves of any metal required to meet specific corrosive conditions. Valves are furnished with any type and size of connections required.

JERGUSON GAGE & VALVE CO.

90 Fellsway **Somerville 45, Mass.**

Representatives in the Following Cities

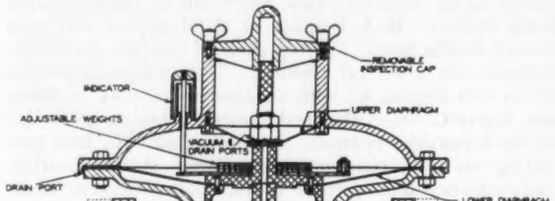
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When inquiring specify CP A4011 — see handy form pages 2-3

INSTRUMENTS

Automatic Liquid Cut-Off Valve

Mounts on outlet line of storage tank; closes to prevent introduction of air into line



Valve cuts-off flow from tank at predetermined level

Uses — The Oceco V-202 Automatic Liquid Cut-Off Valve is designed for mounting on the outlet line of a storage tank.

Features — The valve operates on the balanced principle, and closes automatically to prevent the introduction of air into the line, without requiring that a man go from tank to tank doing this manually.

Operation — As illustrated in the diagram, liquid from the tank flows into the valve, and passes upward through the port applying pressure against the lower diaphragm, raising the valve to permit liquid to pass through and out the connected piping. The pressure on the lower diaphragm is reduced as the level of the liquid in the tank drops lower. The valve with its weighted preloading chamber, closes gradually, and cuts off the flow entirely when the liquid in the tank reaches a predetermined level. The hollow stem of the valve holds the vacuum pull, in balance, between the upper diaphragm and the under side of the valve, so that refilling the tank, with a consequent increase of the pressure against the lower diaphragm, again opens the valve — automatically — permitting liquid to flow through again.

Description — Weighting of the preloading chamber can be varied over a wide range, for various tank levels and operating conditions, and additional weighting can be put on top of the lower diaphragm if desired. All parts are readily accessible for inspection, and the indicator, which shows whether the valve is open or closed, is hooded to keep out dirt and grit. The valves are built with iron bodies, aluminum valves fitted with non-metallic seating rings, and steel stems. 2", 3", 4" and 6" sizes are standard. Others on special order.

JOHNSTON & JENNINGS CO., (Oceco Div.) Dept. CP, Cleveland 14, Ohio.

When inquiring specify CP A4012 — see handy form pages 2-3

★

Precision Remote Manual Control Panel Holds Set Valves Constant Under Changes in Flow, Etc.

Two related bulletins offer a practical presentation of features and operation of the "Nullmatic Remote Manual Control" for air operated valves, dampers, pistons and for the remote setting of the control index on automatic controllers. The first of these Bulletin 401 is concerned

these **ELECTRONIC** *stainless steel* **FINGERS**



Step Up Production
Reduce Waste and Loss

By Preventing

Overflow of tanks
Draining of boilers
Air binding of pumps
Burning out Boiler tubes
Burning processing pots
Water contamination

Faratron Liquid Level Controls

Just two polished stainless steel rods — that's all — in the vat, tank, boiler, processing kettle, freezer, pasteurizer, etc., to control signals or operate pumps or valves: they are constantly on duty — need no servicing — and are easy to install.

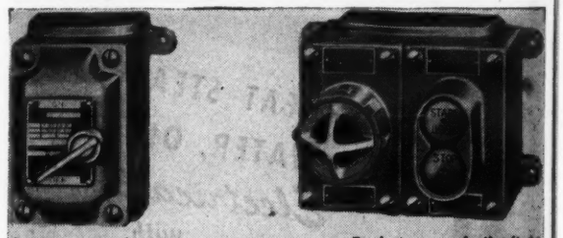
If you have any liquids — hot or cold — in any type of container — to control, you should have our Bulletin 458. Write for it today.

TO PUMP MOTORS — High of Low SIGNAL BELLS or LIGHTS — Motorized VALVES — Etc.

Lumenite Electronic Company

407 S. Dearborn Street Chicago 5, Ill.

When inquiring specify CP A4013 — see handy form pages 2-3



Explosion-proof switch *Explosion-proof pilot light and push button station*

Somewhere in your plant, there are several spots where a combination of explosion-proof, vapor-proof or dust-proof switches, signal lights and push-button stations would simplify your problems.

That is where standardized, precision-made, and interchangeable Russell & Stoll Company fixtures and fittings can serve you well.

Recent developments include some of the largest explosion-proof and power panels ever assembled.

Since 1902

RUSSELL & STOLL COMPANY

EXPLOSION-PROOF, WATER-TIGHT AND EVER ICK RESIST TACLES, PLUGS, CONNECTORS, SWITCHES AND FIXTURES

125 BARCLAY STREET NEW YORK 7, N. Y.

When inquiring specify CP A4014 — see handy form pages 2-3

largely with the manual control panel which includes the Nullmatic Pressure Regulator — which holds set values constant, regardless of wide changes in flow or in supply pressure. The assembly consists of the regulator, a special 0-30 psi control pressure gauge, and a by-pass valve (optional) forming a compact unit that is easy to install on a main instrument board. This control can be furnished as a vertical panel or as a horizontal panel for mounting on a control board below an automatic controller. The bulletin contains a large photo of the regulator and gauge, blue print installation drawings while the back page is devoted to a diagram of the regulator and a detailed explanation of the operating principle. It is to be pointed out that the automatic bleed feature permits lowering the control pressure without using a separate bleed valve. Bulletin 402 gives even more detailed information on the regulator and contains five graphs (1) Effect of Flow and Upstream Pressure Changes on the Regulated Pressure; (2) Required Upstream Pressure for Various Amounts of Flow; (3) Air Consumption on Dead End Service; (4 & 5) Charts Show Comparison to Three Non-Piloted Instrument-type Regulators; (4) plotting Effect of Flow and (5) Effect of Upstream Pressure. Copies of these bulletins on request.

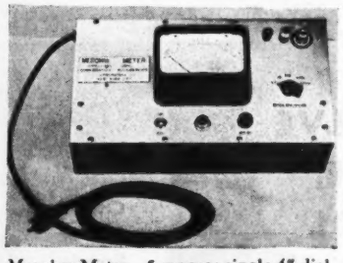
MOORE PRODUCTS CO., Dept. CP, H & Lycoming Sts., Philadelphia 4, Pa.

When inquiring specify CP A4015 — see handy form pages 2-3

★

Portable Megohm Meter

For laboratory and production line service



Megohm Meter—5 ranges; single 4" dial

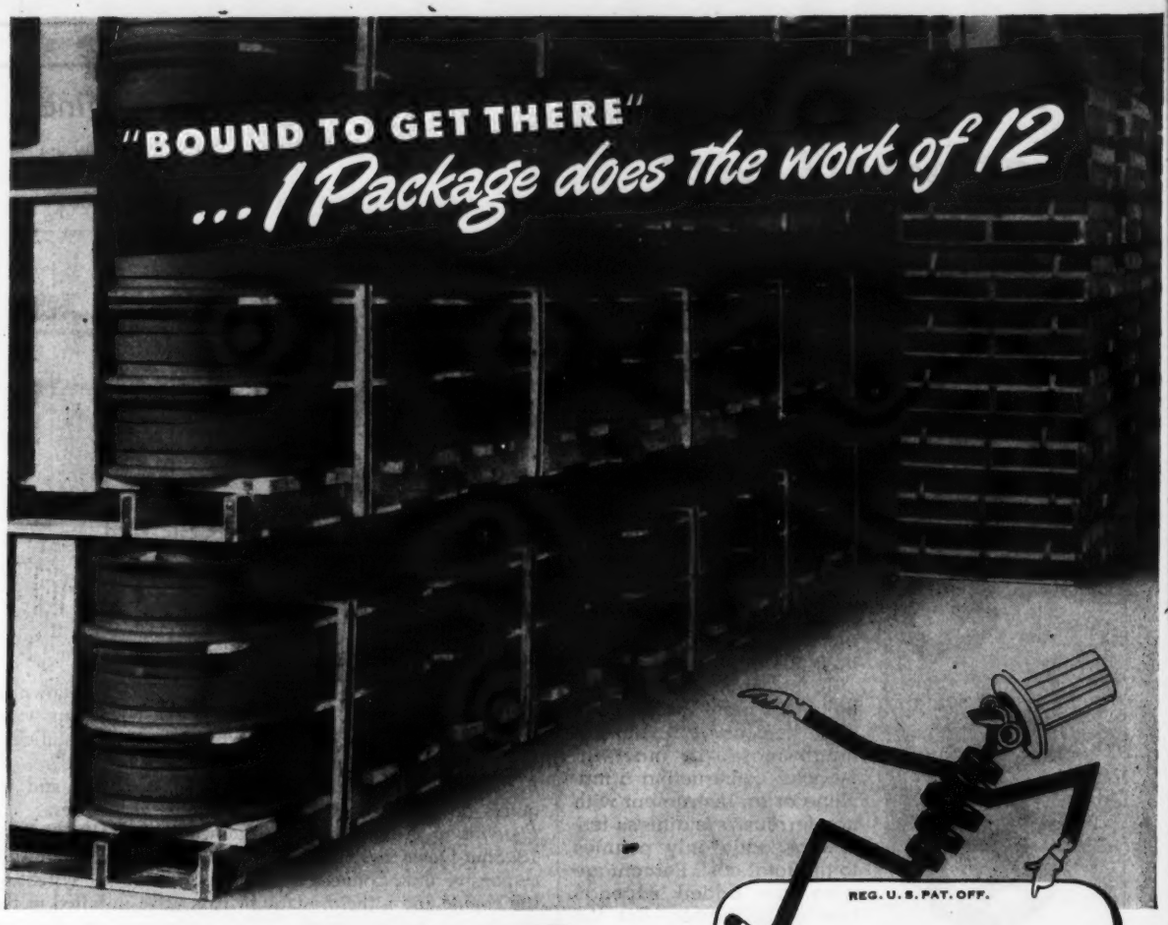
Uses — This Model 1500 meter may be employed on production lines (or in laboratories) where it is necessary to measure and test in widely scattered locations. It is now being used in such applications as measuring of leakage resistance of insulation materials, condensers, coaxial cables, wiring harness, motor and transformer windings. Also for determination of the moisture content of wood, paper board, plastics and other material where the electrical resistance is a function of moisture content.

Features — Easy portability, great stability and a range from 400,000 ohms to 100,000 megohms in five ranges on single scale four inch meter. Exceptional protection against atmospheric conditions where precise testing is required. Accuracy is within 5% at any position on all ranges.

Description — This meter is very stable despite line voltage fluctuations. A change in line voltage from 90 to 130 volts produces a change of less than 3% in meter reading at mid-scale. Single zero reset adjustment is provided for all ranges and drift after interval warm-up period is substantially zero. Efficiently guarded on all ranges to prevent distortion of readings due to atmospheric conditions. Extreme safety measures prevent danger of shock to operator. Weight-8 lbs. Line voltage 115 v., 60c. Literature on request.

COMMUNICATION MEASUREMENTS LABORATORY, Dept. CP, 120 Greenwich St., New York 6, N. Y.

When inquiring specify CP A4016 — see handy form pages 2-3



THAT'S ACME *Uni-Pak*...

The modern method of shipping and handling a group of packages, semi-finished parts, or finished products . . . made possible by Acme Steelstrap.

Alone or in combination with a skid or pallet, Acme Steelstrap converts individual packages into one unit.

Note the photo above. Twelve brake drums per skid all secured with Acme Steelstrap. In short, one package doing the work of a dozen, and "bound to get there."

Enjoy important savings in time and handling costs, plus hearty "thanks" from the customer end of your shipping line . . . Use Acme Uni-Pak for handling and shipping your products.

Acme Uni-Pak Loads 10 Tons More in Single Car

A shipper of cable reels said . . . "we kept close tab on one of our carload shipments using Acme Uni-Pak. We netted a total savings in dollars and cents of $81.64 over old methods . . . plus, 20,000 pounds additional cargo loaded in the car . . ."

NEW YORK 17 ATLANTA CHICAGO 8 LOS ANGELES 11

ACME STEEL COMPANY

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When inquiring specify CP A4017 . . . see information request blank, pgs. 2-3

DEFY CORROSION *at small cost*



BUILD YOUR PRODUCT WITH EVERLASTING FASTENINGS

Your product must stand up in use. In many cases it will meet the destructive forces of rust and corrosion.

Forestall trouble! Use Harper Everlasting Fastenings. They're made of either brass, naval bronze, silicon bronze, copper, Monel or stainless steel. They defy rust and corrosion . . . and *do it at small cost.*

To be sure . . . a bronze bolt costs more than a common steel one . . . but not much more. In most instances, constructing a machine or an instrument with non-ferrous or stainless fastenings adds only pennies to the total cost. Percentage wise, the added expenditure is negligible. But the life of the product . . . the ability to "take it" . . . the probability of freedom from trouble are increased beyond measure.

4360 ITEMS IN STOCK

Harper is known as "Headquarters for Non-Ferrous and Stainless Fastenings" . . . carries large and complete stocks of 4360 different items and is continually adding others. Write for 1945 Catalog.

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EVERLASTING FASTENINGS

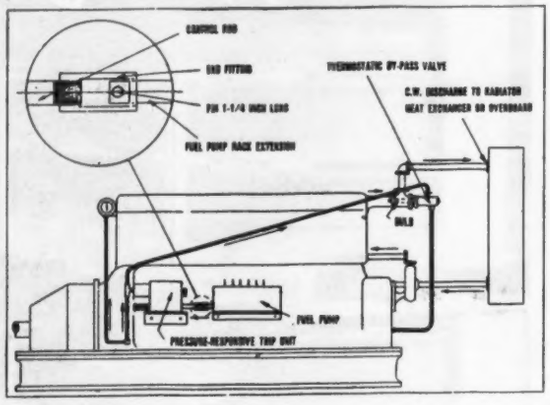
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When inquiring specify CP A4018 — see handy form pages 2-3

INSTRUMENTS

Self-Operating Diesel Engine Shut-Down System

Requires no electric power or accessories



Diesel shut-down system-fuel pump arrangement

Uses — This safety control system is for the shut-down of diesel engines when temperature of the circulating-water system becomes too high, or when there is unsufficient lubricating oil pressure.

Features — The control system is self-operating and requires no electrical power or additional accessories.

Description — This apparatus known as the "Viking R — 18 Shut-Down System" operates by means of a pressure responsive unit, connected in the lubricating oil system of the engine and a thermostatic by-pass valve installed in the circulating water system. The accompanying drawing shows the general arrangement for use with the engine fuel pump. (Arrangement can also be with engine governor lever.)

Operation — The pressure responsive unit houses a bellows which expands upon drop in pressure. This in turn releases a trigger so that the rod and the spring operate the fuel pump or governor lever to shut down the engine. The drop in pressure (and subsequent shut-down of the engine) may be caused by failure of the oil supply or opening of the thermostatic by-pass valve due to increase in circulating water temperature. As the system is self-operating it eliminates such difficulties as blowing of fuses, power failures, etc. It is very easily installed. Data Sheet R-18 contains complete information on operation, with detail drawings of general arrangement, installation and operating instructions and ordering information.

VIKING INSTRUMENTS, INC., Dept. CP, Stamford, Conn.

When inquiring specify CP A4019 — see handy form pages 2-3

★

Radio & Electronics Buying Guide

Buying guide, "Everything in Radio & Electronics" places emphasis on industrial maintenance, research and production requirements for radio and electronic supplies. Included are complete, detailed listings of electronic tubes, test instruments, transformers, resistors, condensers, rheostats, relays, switches, rectifiers, tools, wire and cable, batteries, sockets, generators, power supplies, and other types of equipment in this field.

All equipment is presented in organized sections with items indexed for easy reference. Public address and inter-

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Hamilton offers a creative planning service for practical advice on your individual laboratory installation problems, and modern, functional equipment to fit your specifications. Let us make your planning problems easy . . . there's no obligation.

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Send for your copy of Catalog 209-A . . . write Dept. CP-3-46

When inquiring specify CP A4020 — see handy form pages 2-3

FOR VALVE REMOTE CONTROL



Chemical
Paper
Foods
Petroleum

HILLS-McCANNA diaphragm valves (SAUNDERS PATENT)
with Westinghouse Flex-air and Controlair Controls

HERE'S an efficient and practical way to control valve operations from any convenient point in your plant . . . with Hills-McCanna air-actuated valves. This unit combines the proved principle of the Hills-McCanna Diaphragm Valve with Westinghouse Flex-air and/or Controlair Controls and air-operated piston to give you smooth control . . . fingertip service at all times.

And since this new Hills-McCanna unit . . . like all Hills-McCanna valves . . . *has no packing*, there's no sticking of the stem to interfere with easy, accurate positioning.

For ordinary open and close valve operation the Hills-McCanna unit is used with Flex-air Controls. Dependable throttling service may be had with Controlair and Flex-air Controls and a Hills-McCanna Diaphragm Valve and Piston operation.

This improved type valve is available in sizes from 4" to 12" inclusive. Send today for complete data on installation and operation.

HILLS-McCANNA COMPANY
2370 W. Nelson St., Chicago 18, Ill.

Proportioning Pumps — Force Feed Lubricators — Chemical Valves
Air and Water Valves — Marine Valves — Magnesium Alloy Castings

When inquiring specify CP A4021 — see handy form pages 2-3

communication units are listed for every indoor and outdoor requirement, with ready-to-install systems for a variety of industrial applications. The sound equipment section also includes wide listings of microphones, speakers and other accessories. For training programs and experimental work there are a number of kits, manuals, and diagrams. A large technical book section covers leading publications on radio, electronics and electricity. Other listings:- Fluorescent lighting units, lamps and accessories; Communications-type receivers; Photo-electric cell equipment.

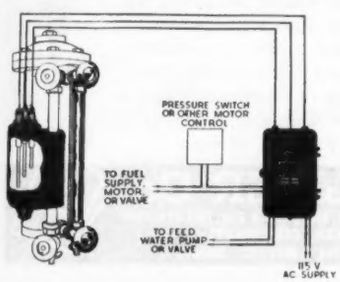
ALLIED RADIO CORP., Dept. CP, 833 West Jackson Blvd., Chicago 7, Ill.

When inquiring specify CP A4022 — see handy form pages 2-3

★

Electronic Floatless Boiler Feedwater Control

Cuts off fuel supply, sounds alarm at low level



Feedwater control — no moving elements or tubes

Uses — Provides fully automatic control for commercial and industrial boilers. It maintains desired water level through valve or pump control and instantly cuts off fuel supply and sounds alarm at a pre-determined dangerous water level.

Features — Operation is without any moving mechanical elements and the only contact with the boiler is through an auxiliary fitting containing metal probe rods which determine the control levels.

Description — In the operation of the Fireye Boiler Feedwater Control, the probe fitting is mounted parallel to the water column and wired to the control. The probes within the probe fitting mark boiler feedwater pump-on and off levels and a low water danger point. When water falls below the middle probe, the control closes the circuit controlling the pump and water feeds into the boiler until the top probe is reached. If water falls below low probe, fuel is shut off and alarm sounded. Supply — 115 v.-230 v., 60c. AC. Output — 10 Amperes at 115 v. or 5 amperes at 230 v. AC. Relay contacts pure silver. Complete details on B177N control on request.

COMBUSTION CONTROL CORP., Dept. CP, 77 Broadway, Cambridge, Mass.

When inquiring specify CP A4023 — see handy form pages 2-3

★

Running Time Recorders for Pumps & Machinery

Running time recorders for recording operating time recorders for recording operating time of machines, pumps, presses, are the subject of bulletin concisely presenting technical data and explaining operation of synchronous motors employed in pen and chart operation. Chart reproduced in full size shows just how recordings are indicated for a jobbing drill press; also partial chart showing recording of running time of coal burner. Copies of Bulletin OP 1502 on request.

THE BRISTOL CO., Dept. CP, Waterbury 91, Conn.

When inquiring specify CP A4024 — see handy form pages 2-3



▶ For any vessel opening, this quick-opening door is one of the surest and fastest acting units ever offered. The door can be opened simply by releasing air or water pressure from behind a peripheral gasket, then moving a handle a few inches to release the lock. Seal between door and vessel is not dependent upon mechanical action, or pressure applied through wrenches or levers.

The Edge Moor Quick Opening Door can be made of any metal, for any size opening and for any pressure; size or strength does not affect ease or simplicity of operation. Regardless of size or pressure, one man can open or close any vessel in a few seconds. For further information, write.

EDGE MOOR *IRON WORKS, INC.*

EDGE MOOR, DELAWARE

BRANCH OFFICES: New York 1, N.Y., Empire State Bldg., Chicago 2, Ill., One No. La Salle St.

When inquiring specify CP A4025 . . . see information request blank, pgs. 2-3

NULLMATIC PNEUMATIC NULL BALANCE INSTRUMENTS

for measurement and transmission of PRESSURE TEMPERATURE FLOW LIQUID LEVEL SPECIFIC GRAVITY

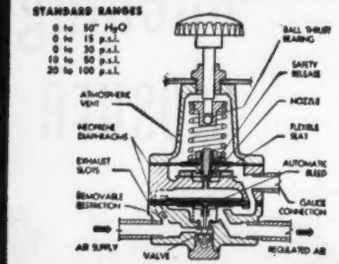
Write for Catalog No. 5

THIS "NULL" SYSTEM IS EMPLOYED IN THE NULLMATIC PRESSURE REGULATOR

— a pressure controller, which maintains the regulated pressure at the set value, regardless of wide changes in flow or in supply pressure.

STANDARD RANGES

0 to 50" H_2O
0 to 15 p.s.i.
0 to 30 p.s.i.
10 to 50 p.s.i.
20 to 100 p.s.i.



APPLICATIONS — (1) For remote manual control of air-operated valves or air-loaded cylinders. (2) For general laboratory use. (3) In calibration departments, for setting and maintaining manometer readings. (4) Wherever precision regulation of air or gas pressure is required.

Bulletin 402 shows graphs of performance data.

VACUUM PRESSURE Regulators Information on request

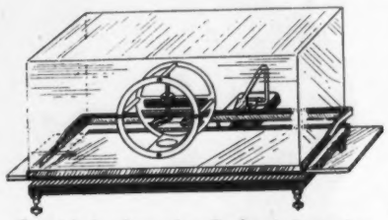
MOORE PRODUCTS CO., 914 E. Lycoming St., Philadelphia 24, Pa.

When inquiring specify CP A4026 — see handy form pages 2-3

INSTRUMENTS

Hardness Rocker Tests Drying Time of Films, Fabric Tautness

Other uses — on paper, rubber and resins



Cover is in place when Rocker is in motion

Uses — An instrument for testing the hardness and drying time of films and the tautness of aviation fabrics. Other uses suggest themselves such as determining hardness of paper, rubber, resins, etc.

Description — This device consists of two four inch metal rings spaced one inch apart, a circular level at the bottom, and two tube style levels at the lower half for indicating the beginning and end of the test. The harder the surface or film the longer it will rock after being set in motion. Values obtained on films are compared with those obtained on polished plate glass.

Operation — The film is prepared on polished plate glass by flowing, brushing, spinning, spraying, wiping with a doctor blade, etc. Dust or lumps in the film should be avoided. When ready for test, the panel is supported on the leveling table. Level the surface, using the circular level at the bottom of the Rocker as a guide. Set Rocker in motion so that the left end of the bubble in the left hand tube travels beyond the mark for three or four



Maybe our imagination is flying high. But getting down to earth, the "Red-Reading-Mercury" column on a Palmer Thermometer enables you to read temperatures accurately from a far greater distance — even through smoke and steam! "Readability", precision manufacture, and longer life make Palmer Thermometers the choice of engineers. In your plant, too, they'll **best** meet every temperature-reading requirement. Write for catalog.

The PALMER Co.
MFRS. INDUSTRIAL, LABORATORY, RECORDING & DIAL THERMOMETERS
2819 NORWOOD AVE., CINCINNATI 12, O.
CANADIAN PLANT: KING AND GEORGE STS., TORONTO, 2

Red reading mercury

When inquiring specify CP A4028 — see handy form pages 2-3

Attention:
Plant Engineers and Superintendents

SIMPLICITY GYRATING SCREENS of standard type construction are doing excellent work in screening and dewatering various materials in chemical plants. However, our engineers have now completed a successful design of a special Simplicity Screen for this industry. The efficient Simplicity gyrating mechanism is retained, but the screen body is built to provide easy and quick access to all its parts so that it is 100% sanitary. The screen sections can also be changed at a moment's notice. Installations of these sanitary type screens are now being made in several key plants, where their operation can be closely checked. Write for further details and for recommendations covering your own problem.

SIMPLICITY ENGINEERING COMPANY
DURAND, MICHIGAN
For Canada: Waterous Limited, Brantford, Ontario

When inquiring specify CP A4027 . . . see information request blank, pgs. 2-3



8 pages of Interesting Data for users of ALLOY CASTINGS

This new 8 page bulletin contains two full pages on physical properties of the various alloys. Illustrations and helpful information. Please ask for bulletin 45 when writing.

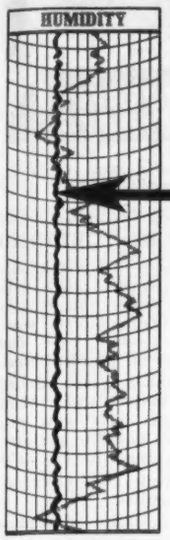
ATLAS STAINLESS STEEL CASTINGS

ATLAS STAINLESS STEEL CASTING
DIVISION
ATLAS FOUNDRY COMPANY
525 LYONS AVENUE IRVINGTON 11, N. J.

When inquiring specify CP A4029 — see handy form pages 2-3

MOISTURE ENGINEERING

with the KATHABAR System automatically and accurately provides



THE PROPER HUMIDITY

—independently of temperature—

for processing operations in the manufacturing of:

DRUGS, PHARMACEUTICALS, CHEMICALS, FOODS, OR ANY PRODUCT OR MATERIAL AFFECTED BY EXCESS HUMIDITY CONDITIONS... *Write for information.*

SURFACE COMBUSTION • TOLEDO 1, OHIO

SC Kathabar System of HUMIDITY CONTROL

(ADVANCED AIR CONDITIONING)

When inquiring specify CP A4030 — see handy form pages 2-3



When inquiring specify CP A4031 — see handy form pages 2-3

INSTRUMENTS

swings. Begin to count when this bubble just fails to travel beyond the mark. Remember to begin with naught (0). Stop the count when the bubble in the right hand tube fails to travel beyond the mark in that tube. Before shipment, the Rocker is adjusted to give 50 complete oscillations on polished plate glass. Multiplying by 2, or using the sum of two determinations, gives 100, the value of glass as a reference standard. Adjustments may readily be made by changing the angle of the left hand level. The pointer attached to the tube holder assists in this operation. Adjustments of speed may be made by means of the weight on the vertical screw. Lowering the weight increases the speed. The usual speed is 50 swings in 60 ± 0.5 seconds. If the Rocker does not come to rest in a level position on a level surface, move the rider on the name plate accordingly. A small light, set on a level with the rocker and a few inches to the left, will increase the visibility of the bubble.

Drying Time — One widely used method for determining the rate at which a film becomes firmer is to plot the Rocker values against time of drying after tackiness of the film has disappeared. Another method, especially for soft films, is to determine the time for the Rocker to come to rest and to plot this value against elapsed time. To facilitate the use of the Sward Hardness Rocker, an adjustable leveling table and a hinged cellulose cover are now available. The table top is made of nickel plated brass, having dimensions of 7" x 12". Air currents have a direct bearing on the oscillation of the Rocker and for this reason the use of the cover is recommended. Complete details on request.

HENRY A. GARDNER LABORATORY, INC., Dept. CP, 4723 Elm St., Bethesda, Maryland.

When inquiring specify CP A4032 — see handy form pages 2-3

★

Recorder For Continuous Record Time On-Off Multiple Operations

Up to 6 pens can be combined on a single chart

Uses — Operational recorder provides a continuous record of "time on" and "time off" of multiple operations including process timing, periodical operations which can be connected electrically such as boiler blowdowns, time study work, and at the time when a particular check is made, etc.

Description — This instrument can be provided with a single acting pen, two position double acting pen or a three position pen. As many as six single or double acting pens can be combined on a single chart. It can be supplied in 115 to 230 volts AC or with special voltages on application. AC clock mechanisms are available from 15 minute periods to 8 days.

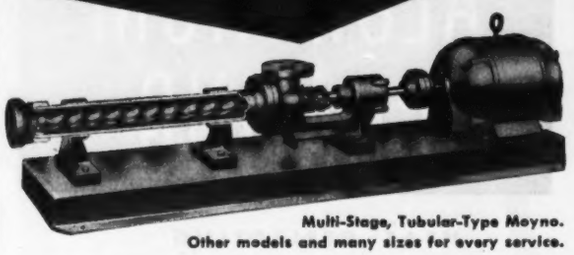
The double acting pen is now being used in Ess Instrument "Normality" indicators, such as the Hazegage, Gravigage, Turbidity, etc., to record the operations of their indicators. When operation is normal a circle is traced. If the process goes too far in one direction, the pen moves outward and remains there till "normal" is resumed when the pen returns to the center point. If the process goes too far in the other direction the pen moves to the other side of "normal" and remains there as long as the conditions persist.

As many as six of these three position "Normality" pens can be placed on one chart to give a complete picture of the "Normality" of six processes, by a glance at the chart.

ESS INSTRUMENT CO., Dept. CP, Bergenfield, N. J.

When inquiring specify CP A4033 — see handy form pages 2-3

The Pump Without "Type" Limitations



Multi-Stage, Tubular-Type Moyno.
Other models and many sizes for every service.

R & M MOYNOS GIVE YOU THE PERFORMANCE YOU WANT

Here's the pump that combines the advantages of all other types in *exclusive* Moyno performance—stands up where other pumps *fail.* It has no pistons, yet discharges in pressures as high as 1000 psi.—no high internal velocities, yet delivers without pulsation. Moynos are the *answer* to your pumping problems.

MOYNO vs. Piston Pump
Moynos have no valves; no pulsation; less weight; less bulk; better performance on highly viscous fluids; much longer life on abrasives; usually, lower cost.

MOYNO vs. Rotary
Moynos are not limited to moderate pressures and to services only mildly abrasive; do not depend upon critical end-sealing and large areas of diametrical clearance. Moyno sealing is all in one replaceable element with a minimum of constantly changing diametric seal, and no end-seal whatever.

MOYNO vs. Centrifugal
Moynos are self-priming; liquid velocities are low, smooth, uniform; displacement is positive. Moynos give better capacity-pressure regulation; can create higher reserve pressures; pump highly viscous fluids better, and with less wear.

MOYNO vs. Turbine
Moynos pump virtually anything; have no high speed impellers or critical clearances; handle abrasives; self-prime at all lifts.

Free Book Gives All the Facts

Find out all about the amazing R & M Moyno. Learn why this simple, durable design should be *your* pump for everything from easy applications to "impossible" conditions of abrasion, high viscosity, and suspended solids. Send for our new book, "A Turn for the Better . . ." today!



ROBBINS & MYERS • INC.
MOYNO PUMP DIVISION • SPRINGFIELD, OHIO
HOISTS & CRANES • MACHINE DRIVES • MOTORS • FANS • FOUNDED 1878

When inquiring specify CP A4034 — see handy form pages 2-3

Reilly ALUMINUM COATING

HEAT REFLECTING
SURFACE PROTECTING
BEAUTIFYING

for

★ TANKS
★ TOWERS
★ STACKS
★ METAL BUILDINGS

Reilly Aluminum Coating combines, in a one-coat job, the corrosion-resisting properties of coal tar with the attractive appearance and heat-reflecting property of aluminum.

The aluminum pigment used in this coating is the highest quality aluminum powder. This powder is thoroughly milled into the coal tar base, and floats to the surface **after application,** where the aluminum particles interlock to form an additional protective shield. This bright aluminum shield serves to deflect the sun's rays, resulting in lower temperatures as compared with dark surfaces similarly exposed. This is a distinct advantage for tank plates within which volatile materials are stored.

Reilly Aluminum Coating is available in one and five gallon cans and 50 gallon drums.

REILLY TAR & CHEMICAL CORPORATION

Merchants Bank Bldg., Indianapolis 4, Indiana
500 Fifth Ave. New York 18, N. Y.
2513 S. Damen Ave. Chicago 8, Ill.
17 Plants • 24 Sales Offices • To Serve The Nation

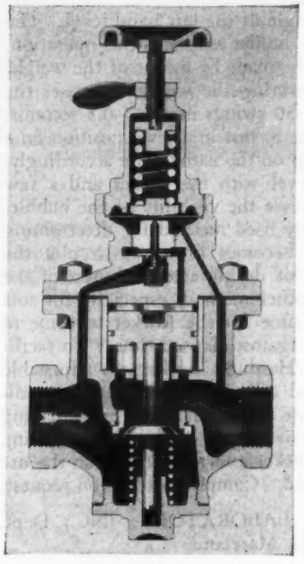


When inquiring specify CP A4035 — see handy form pages 2-3

INSTRUMENTS

Internal Pilot Operated Air Reducing Valve

Corrosion resistant, renewable wearing parts; tight closing in dead end service



Air Reducing Valve; ½-4"

Uses — Developed during war to meet the requirements for air reducing valves for Diesel-powered ships and smaller boats, its performance indicates its value in industrial service where accurate air reducing valves are required.

Features — Stability under all flow conditions; responsive instant action to sudden variations in load. Plastic inserts in the valve seats provide positive tight shut-off and long life.

Description — These class L-1A valves are available in sizes ½" through 4" inclusive and designed for initial pressures up to 400 air pressure and reduced pressures from 5 to 300 psi. A single valve design for control of small air valves is known as class JA-1 in ¼", ⅜" and ½" sizes and is similar in construction, except that a neoprene diaphragm is used in lieu of bronze piston employed in the class L1-A. This valve JA-1 has the same initial pressure range and will control reduced pressures from 1 to 300 psi.

LESLIE CO., Dept. CP, 90 Delafield Ave., Lyndhurst, N. J.

When inquiring specify CP A4036 — see handy form pages 2-3

★

Single Stage General Service Pumps

Complete details concerning single stage general service pumps are given in a new 20 page, illustrated catalog. These pumps, embracing one type out of a number offered by this maker, are suitable for a wide variety of services wherever liquids have to be handled. Their applications include condenser circulation, air conditioning equipment, transfer service in sugar refineries, chemical plants, oil tank farms, beverage plants and many other industrial hydraulic requirements. These single stage units are designed for capacities to 25,000 gpm, against heads up to 300 feet. They are available in several combinations of metals for a wide variety of liquids. A number of pages of the catalog show typical installations. Cross sections and interior views augment the detailed descriptions presented in the text and the various types of drives available are also shown. Performance and dimensional tabulations and procedures in solution of a typical pumping problem round out the book.

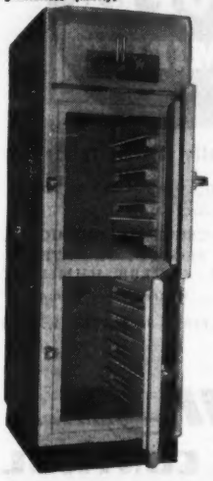
INGERSOLL-RAND CO., Dept. CP, Phillipsburg, N. J.

When inquiring specify CP A4037 — see handy form pages 2-3

FINGER-TIP AUTOMATIC CONTROL with "Anets" LABORATORY CABINETS



Just the turn of a dial changes temperature and humidity conditions to make tests under different requirements. Fully automatic and all-electric. Precision control guarantees quality.



STAINLESS STEEL FABRICATION CAN NOW BE OBTAINED

A new improved model is available with inner shell, ducts, air conditioner, inside of doors and heating unit of heavy gauge stainless steel. New instrument panel. New dial type thermometers of stainless steel.

New molded rubber gaskets around doors provide a perfect seal. Many other improvements give you precision control and long life performance. Write for Bulletin No. 170.

★ Testing electrical and electronic units and assemblies.
★ Weathering, moisture absorption control, package testing, etc.
★ Incubation, germination, and bacterial culture development.
★ Processing plastics, fabrics, metals and wood.
★ Fermentation, proofing and processing of food products.

ANETSBERGER BROTHERS
3322 ELSTON AVENUE, CHICAGO 18, ILLINOIS

When inquiring specify CP A4038 — see handy form pages 2-3

WHAT are your Acid-handling needs

Chemical Stoneware Offers Many Advantages

Investigate acid-proof chemical stoneware for handling corrosive liquids — particularly for vessels of large size and complicated shapes to which other materials are not usually suited.
General Ceramics can furnish many of the acid-handling stoneware items you need right from stock and, on special items, is prepared to function from blueprint to finished product, to your individual requirements.
Check over the titles of bulletins listed at the right. Any that apply to your problems will be sent to you without obligation. Write for them on your business letterhead.

ASK FOR THESE BULLETINS BY NUMBER

- **Centrifugal Pumps** ..... **Bulletin No. 211**
- **Exhaust Fans and Blowers** ..... **Bulletin No. RA**
- **Plugcocks and Valves** ..... **Bulletin No. 131**
- **Filtration Equipment** ..... **Bulletin No. 271**
- **Tanks, Jars, Pots and Storage Equipment** ..... **Bulletin No. 111**
- **Towers** ..... **Bulletin No. HA**

GENERAL CERAMICS and STEATITE CORP.
Chemical Equipment Division
Keasby, New Jersey

GENERAL CERAMICS CHEMICAL EQUIPMENT

BUFFALO: LOS ANGELES: NEW YORK: TACOMA:
MONTREAL: SEATTLE: VANCOUVER, B.C.: CHICAGO:
PORTLAND, ORE.: SAN FRANCISCO: HOUSTON: TORONTO:

488

When inquiring specify CP A4039 — see handy form pages 2-3

PROTECTOSEAL

PROTECTS! AGAINST FIRE OR EXPLOSION

SEALS! AGAINST LOSS BY EVAPORATION

SAFEGUARDS! HANDLING, STORING, AND DISPENSING

FLAMMABLE LIQUIDS



FILL AND VENT FITTINGS



Fire-safe baffle tube extends to bottom of tank for rodding. Built-in gravity-operated automatic relief valves for pressure and vacuum. Eliminate waste and reduce fire hazard with Protectoseals. Approved by Underwriters' Laboratories.

THE PROTECTOSEAL COMPANY
1932 S. WESTERN AVE., CHICAGO 8, ILL.

PROTECTOSEAL

When inquiring specify CP A4040 — see handy form pages 2-3



CLIPPER MADE THIS CUT IN 5 SECONDS

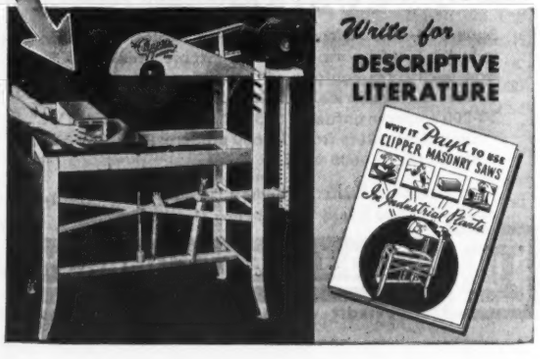
Clipper Masonry Saws provide fast, economical cutting of special sizes and shapes of Clay, Concrete, Magnesite, Sillimanite, Acid Resistant Brick and other refractories.

Precision cuts easily made assuring tighter joints and longer lasting walls and arches in furances, boilers and acid chambers. Greater salvage of materials made possible through use of this equipment.

FREE TRIAL IN YOUR PLANT.

Complete information sent on request.

CLIPPER MANUFACTURING CO.,
4034 Manchester, St. Louis 10, Mo.



When inquiring specify CP A4041 — see handy form pages 2-3

INSTRUMENTS

Dual Tube Manometer

Separate tubes in same case each with individual well

Uses — As a calibrating standard manometer for checking flow meters, pressure gauges, and other secondary units operating on pressure or vacuum principle. It is direct reading. Since both tubes indicate the same reading, the operator can choose the one most convenient.

Features — This Dual-Tube Manometer may help avoid accidents because of its ease in reading from floor level and to save time and effort in reading.

Description — This new manometer development — the Dual-Tube, M-100 — consists of two separate manometer tubes in the same case — each tube with individual well. It enables the operator to read high range pressures, vacuums, and differentials from the floor level. The left tube has a scale increasing upward; the right tube a scale increasing downward. Both tubes are connected in parallel to the same pressure source. The instrument is available in ranges of 50" to 150".

THE MERIAM INSTRUMENT CO., Dept. CP, 10920 Madison Ave., Cleveland, Ohio.

When inquiring specify CP A4042 — see handy form pages 2-3

★

Instruments and Systems for Process Control

A new general catalog contains twenty-four pages of information on automatic, controlling, recording and instruments. It also contains hints on how these may be used most effectively to save time, money and promote efficient operations. In sequence of their presentation the catalog covers: Chart recorders, and indicators, pyrometers, — indicating and indicating and recording; free-vane air operated controllers, electronic type free-vane controllers, also electric-contact and mercury-contact types. The Metameter System of Telemetering is briefly described and a typical application shown in a drawing. Therometers, pressure gauges, flow meters, liquid level controls, humidity instruments are also shown. Process control systems embracing cycle controllers, time program controllers etc. are the closing items of interest. Copies are available to all those interested in control requirements.

THE BRISTOL CO., Dept. CP, Waterbury 91, Conn.

When inquiring specify CP A4043 — see handy form pages 2-3

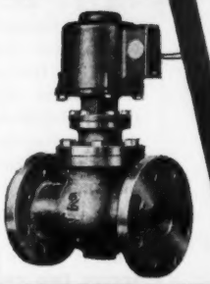


Bulletin 8015 — packed, manually reset, electrically tripped valve.

SOLENOID VALVES

LET THEIR SNAP ACTION PROTECT PERSONNEL, PROCESS AND PLANT

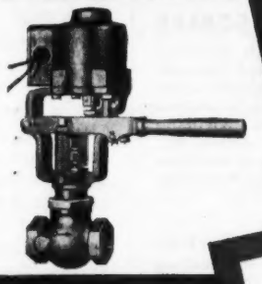
You have pipe lines carrying liquids or gases. No doubt you have machines or equipment utilizing or operated by a liquid or a gas. How many of these would be dangerous to personnel, process or plant should the flow fail to stop instantly and automatically in an emergency . . . or fail to start, should such action be desired?



Bulletin 8010 — packless, used with push button reset relay for remote manual resetting; Factory Mutual approved.

These are the key places where the proper type of ASCO Shut-Off Solenoid Valve will provide the protection needed. We can furnish valves that will snap closed to stop a flow when trouble develops. We have valves that will snap open to permit a flow to begin. We have valves designed especially for use under many kinds of explosive or fire hazard conditions.

The automatically operating Solenoid Valve has proved itself to be one of the best protective devices for the process plant. We suggest you check up on the ASCO Line of Safety Shut-Off and Trip Valves for this purpose. Send for Circular No. 200.



Bulletin 8025 — plain safety shut-off, manually reset, no-voltage release; general purpose.

The Solenoid Valve is also an effective instrument for automatically controlling cyclic operations. Circular No. 200 also covers the Pilot 2-way, 3-way and 4-way ASCO Valves used for this purpose.

ASCO Solenoid VALVES

We also manufacture a quality line of Automatic Transfer Switches, Remote Control Switches, Contactors and Relays

Automatic Switch Co.

47 EAST 11th STREET • NEW YORK 3, N. Y.

3-AS-1

When inquiring specify CP A4044 — see handy form pages 2-3

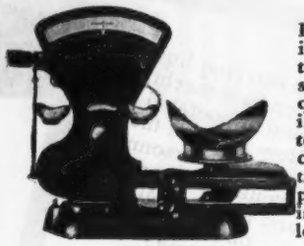
Headquarters FOR SCALES



PRINTED WEIGHTS

Toledo Printweigh Scales produce printed weight records in big figures at split-second speed. They eliminate human errors in recording weights that so directly affect factory costs and profit. For use with tickets, sheets, or strips. Write for Bulletin No. 032.

COUNTING



For quickly and accurately issuing predetermined quantities of parts or pieces from stock; or counting unknown quantities, as in receiving or inventory. Eliminates slow, tedious hand counts. Wide choice of models . . . for extremely small parts, or for parts totalling several tons in weight. Write for Bulletin No. 204.

WEIGHING...*In All Capacities*

Dial Scales For the full range of industrial requirements from Portable Scales to Motor Truck and R. R. Track Scales. Also Hopper, Tank and Overhead Track Scales. Write for Bulletin No. 020.



Over-Under Scales For packing, filling, and check weighing. "Speedweigh" for capacities to 5 lb., also bench and portable types for heavier requirements. Write for Bulletin No. 415.



SPECIAL-PURPOSE SCALES

Toledos equipped with electric cut-off, can be interlocked through control panels for completely automatic batching. Automatic conveyor scales to totalize weights. Airplane weighers; dynamometer scales, etc. Toledo Scale Engineering is available for consultation on special weighing and control problems.

Balancing, Testing, and Force-Measuring Devices

For balancing connecting rods, propellers . . . for testing springs of all kinds, and piston rings . . . for continuous check of weight of coated materials in production. Write for further information.

NATION-WIDE SERVICE

There are 181 Toledo Offices conveniently located throughout United States and Canada. Service mechanics at these offices are factory-trained in the maintenance of all types of scales. Toledo Scale Company, Toledo 12, Ohio.

TOLEDO SCALES

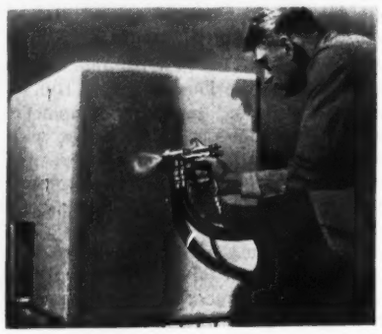
When inquiring specify CP A4045 — see handy form pages 2-3

★ IDEAS ★

Industrial ingenuity constantly hatches new ideas, many of which can be applied to similar problems in other plants. The Editors have selected these ideas and developments because of their interest and possible application in specific plant problems. If you would like more information on any of these, write direct to the manufacturers.

New Spray Gun Applies Two Colors At a Time Through One Nozzle

Two coat spatter finishes; simulated hammer finishes with effect of iridescent metal secured in one operation



"Dimenso" — 2 color spray gun

Two-coat spatter finishes and simulated hammered finishes which give the effect of iridescent metal are now possible in one spraying operation with "Dimenso", a newly-developed spray gun which sprays two colors simultaneously through one nozzle. Especially suited for automobile dashboards, radio cabinets, instrument panels, laboratory equipment, instruments, air conditioning equipment, cabinets, etc., sewing machines, lighting fixtures, vacuum cleaners and other metal products where a finish combining beauty and durability is desired, "Dimenso" provides a one-operation finish that is very durable and faster and cheaper than conventional hammer and spatter finishes requiring two or three operations. The smooth Dimenso finish has no dust-collecting cracks, wrinkles or fissures. The "Dimenso" gun, a development of the Sherwin-Williams Company of Cleveland, differs but slightly from ordinary spray guns in appearance or operation. It has the normal spray fan control valve and fluid control valve, trigger assembly, head, fluid tip and needle. However, it has an additional fluid inlet near the head of the gun to accommodate the second color paint. Comparing favorably with wrinkle finishes for bridging and masking metal imperfections, "Dimenso" sprays rapidly in either manual or automatic application. The formulation of the "Dimenso" coatings and the design of the spray equipment permit uniform coating at any angle with low sensitivity to film thickness and minimum sagging tendency. A large number of pattern styles are obtainable with the "Dimenso" gun. Some of the more common include smooth finish color over color, color over metallic, metallic, and a combination of metallic enamels producing hammered finish effects. Primarily, Dimenso is furnished in three types of finishes, all baking thirty minutes at 300°F., or its equivalent. These are: (1) *Hammered or Spot Pattern* — In this pattern the metallic finishes will give a very definite, well-defined spot type of hammered finish effect. The non-metallic color finishes will show a very sharply outlined spot with a minimum blending of the background and spatter colors. The depth or dimensional quality of the film will be apparent to a lesser extent in this type of pattern than in either of the others, but this pattern will give an effect more nearly like a hammer or spatter finish obtained by a separate operation. (2) *Toned Hammer Finish* — In this style of Dimenso pattern, the hammered or colored spots in both the metallic and non-metallic finishes are not so definitely defined so that a very beautiful and unusual spot or hammered effect is obtained with a softly feathered-out blending of the two component enamels making for tremendous depth or dimensional quality of finish, particularly in the metallic variety. (3) *Diffused Pattern* — The remaining style of pattern is characterized by the rather vague and irregular pattern of the spots in both the metallic and non-metallic finishes. The spots lack definition as in the case of the toned pattern, but the general effect shows much more blending than is the case of the toned pattern. The depth or dimensional quality of the finish, although less apparent than the toned pattern, is more pronounced than the straight hammered or spot pattern. The coverage obtained with a Dimenso gun closely approximates that of standard high gloss enamels, roughly 450 square feet per gallon for the spatter and 263 square feet per gallon for the background.

Dimenso finishes will be divided into two types: Regular Baking and Special Baking. The former will be normally

Explosion-Resisting CIRCUIT BREAKERS • SAFETY SWITCHES



for Class 1, Group D Hazardous Locations

Square D offers a complete line of explosion-resisting industrial safety switches and circuit breakers. Cast iron enclosures conform with requirements of Underwriters' Laboratories, Inc. Switch capacities range from 30-200 amperes unfused. 575 volts A. C., 600 volts D. C. Circuit breakers from 15-600 amperes, 125/250—250 volts D. C., 250-600 volts A. C.

for detailed Bulletin, **address the Square D Company, 6060 Rivard Street, Detroit 11, Michigan.**

SQUARE D COMPANY

DETROIT • MILWAUKEE • LOS ANGELES

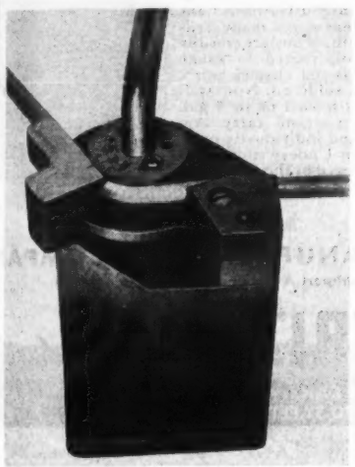
When inquiring specify CP A4046 — see handy form pages 2-3

recommended for general use and will perform satisfactorily on any of the following schedules. The second type will cover those special cases where unusually high baking schedules are used or where some other performance test or production factor prohibits the use of the Regular type. The "Dimenso" enamels for use in the "Dimenso" gun are made to meet specific requirements. The guns are obtainable only on lease.

★

Hand-Bending Tool Curves Small Tubing to Any Angle

May be used in a vise or clamped to bench

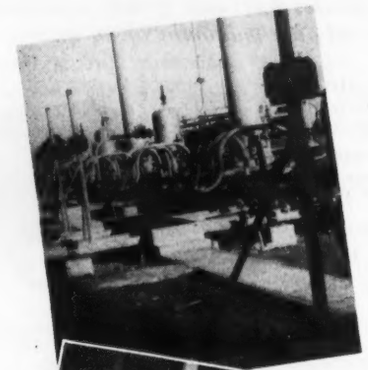


Hand bending tool showing top plate calibrated in degrees

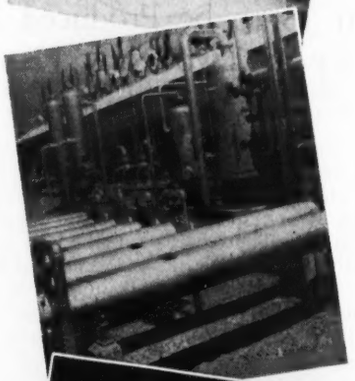
A new hand-bending tool, which permits all kinds of small tubing to be curved to any desired angle, has been developed at the Glenn L. Martin Company, Baltimore, Maryland. The new tool consists of a sturdy steel base which may be used in a vise or clamped onto a bench; a revolving radius rod equipped with a handle for turning; a stop block grooved to hold the tubing; and a movable radius block which guides the tubing around a bend roll centered on top the base. This roll, cylindrical in shape and also grooved has a top plate scribed in 360 degrees. A measuring point is marked on the movable radius block. The radius and holding blocks and the roll are so grooved as to prevent crushing or change in section of the tubing. In operation the tubing is inserted in the groove of the stop block and the movable block which has been returned to the zero degree point. The movable block is then pulled around the bend roll, being connected to the revolving radius rod, until the measuring point is directly opposite the mark of the angle desired in the bend roll. Allowances can be made for tubing having a "spring back" characteristic by merely moving the measuring point to as many degrees beyond the desired angle marking as the tube will spring back when released. An operator can easily measure this amount of allowance needed from the spring back shown on the top plate of the bend roll, when pressure on the handle is released. Utilizing the same principle, tools may be made for bending tubing of any size. By the simple substitution of a set of phenol fibre blocks, similar in design to the metal blocks, hot-dipped or tinned spiral high-electrical cables (for example, battery cables) also can be bent in the new tool. Use of the phenol fibre accessories prevent the semi-molton coating on the wire from adhering to the blocks, as would be the case with use of the steel blocks on the original tool. Chief advantages of the new device lies in the great amount of time saved as compared to ordinary hand bending operations, the extreme accuracy to which the tubing can be turned and a material serving in that there is no scrap due to the tubing being crushed or split during the operation.

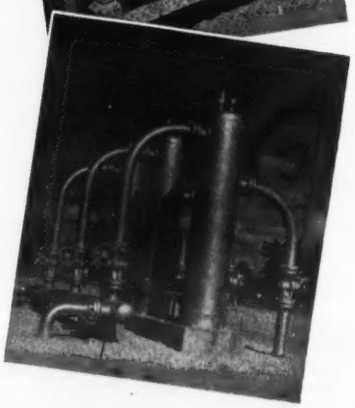
NEW B. S. & B. SAFETY HEAD CATALOG

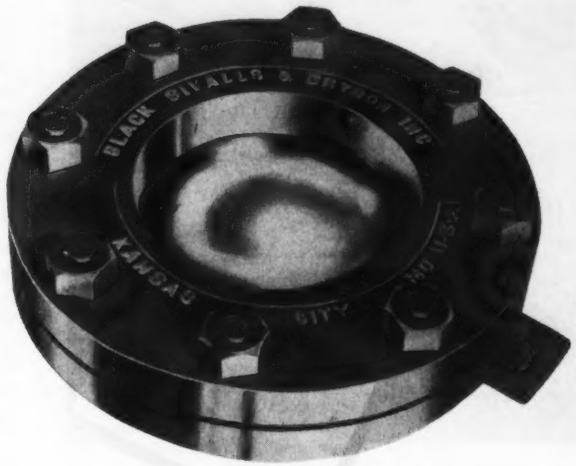
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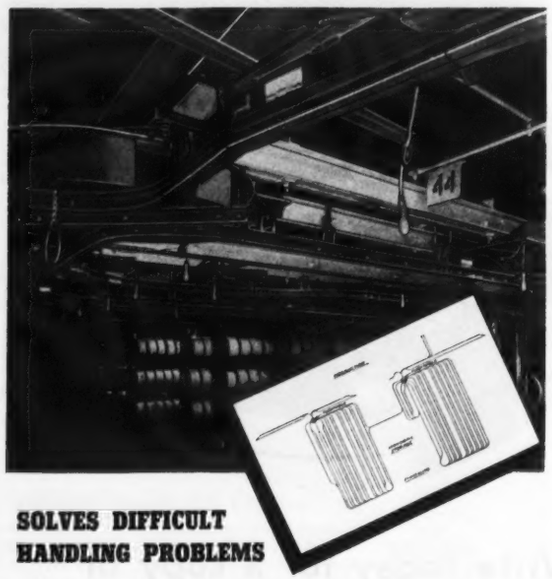
B. S. & B. SAFETY HEADS are now in use in most of the large industrial plants protecting pressure vessels. If you are not using SAFETY HEADS in your plant you will find this new catalog very helpful in planning your safety factors. Write today and we'll put your name on the list to receive this new catalog when ready.

Black, Sivalls & Bryson, Inc.

7500 E. 12th Street
KANSAS CITY 3, MISSOURI

When inquiring specify CP A4047 . . . see information request blank, pgs. 2-3

FLEXIBILITY
OF AMERICAN MONORAIL EQUIPMENT



SOLVES DIFFICULT HANDLING PROBLEMS

Here is another of the hundreds upon hundreds of handling problems efficiently and economically solved by American MonoRail Overhead Handling Equipment.

THE PROBLEM: To eliminate manual handling of reels from production machines to storage, from storage to finishing, from finishing to storage or shipping as required.

THE ANSWER: The FLEXIBILITY of American MonoRail switching arrangements permits reels to move on carriers with no rehandling between processes. Ample live storage is allowed, permitting free movement between all processes.

What is your handling problem? American MonoRail Engineers come up with the answer to efficient and economical handling ninety-nine times out of a hundred. We invite your inquiries.



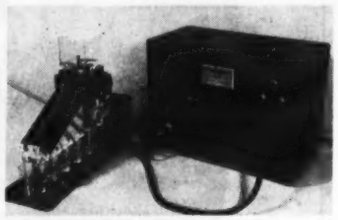
THE AMERICAN MONORAIL COMPANY
13109 ATHENS AVE. ● CLEVELAND 7, OHIO

When inquiring specify CP A4048 — see handy form pages 2-3

IDEAS

Automatic Ball Sorter

Sorter divides balls into groups separated by only ten millionths of an inch



Unit sorts ball in 10 sizes

To provide perfectly sized and perfectly matched balls for better and more accurate bearings, and to sort them faster, the Electronics Department of Jack & Heintz, Inc., Cleveland, Ohio, manufacturer of aircraft accessories, developed this electronic ball gauge.

When fed commercial balls, which have already been graded to a tolerance of 1/20,000 inch, this automatic machine sorts them into groups five times more accurate. As many as ten size selections can be made — each group being separated by only ten millionths of an inch.

Operation consists only in filling the plexiglass hopper and removing the sorted balls. Jack & Heintz officials state that one operator can handle four machines easily, and that each four machines sort more balls than 32 skilled operators using the conventional measuring equipment — and do it far more accurately.

★

Carbon 13 to be Produced in Quantity in Two New Plants

Will increase world supply 500-1000 *times*

Plans for the construction of two plants to produce in comparatively substantial quantities Carbon 13 have been announced by the Sun Oil Co. and Houdry Process Corporation. This is in response to the desire of scientists who are fighting metabolic disease. Carbon 13 is a rare material found to have great value in biochemical research work. Under these new projects work supplies of Carbon 13 would be increased 500 to 1000 times. Carbon 13 used in biochemical research as a tracer gives promise as "ranking in importance with X-Ray as a tool of medical science." Up to the present time, Carbon 13 total world production has been at the rate of less than one half ounce per year. The only Carbon 13 generally available to research institutions has been produced by the thermal diffusion plant of the Houdry Process Corporation of Pennsylvania, at its laboratories at Marcus Hook, Pa. This plant has been steadily producing since July 1945 about one fourth of a gram of Carbon 13 per month at a cost of about $400 per gram. It is hoped that construction of the new plants will bring this cost down to about $40 per gram. Carbon 13 looks like ordinary carbon and can be used to produce any of the compounds normally composed of carbon, such as sugar, alcohol, the hydrocarbons of gasoline, etc. It can be used to grow vegetables which have some or all carbon atoms with an atomic mass equalling 13. These compounds or vegetables, injected into or eaten by living organisms, including humans, contain the necessary tracers by which their effects on the body can be discovered. Carbon 13 produced by the two plants will be made available without cost to non-commercial biological and medical research organizations whose activities and experience justify such donations.



JUSTRITE Safety-Approved Can Cuts Fire Hazards to a Minimum



Because they've proven themselves the ideal container for handling and storing flammable liquids, Justrite Gasoline Cans are standard equipment on many railroads. Justrite Gasoline Cans are sturdily constructed of heavily coated 24-gauge steel with high-gloss red enamel finish. Double seamed and soldered. Non-spill pouring lip. 7 sizes from 1 pt. to 5 gal. Convenient to fill, use and carry. Approved, inspected and individually numbered and labeled by Underwriters' Laboratories, Inc. Approved by the Associated Factory Mutual Fire Insurance Companies and so stamped.

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See your supplier—today!

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JUSTRITE *Safety*

SAFETY CANS • OILY WASTE CANS
APPROVED SAFETY ELECTRIC LANTERNS

When inquiring specify CP A4049 — see handy form pages 2-3



WARD OFF HAND HAZARDS
with Surety SURESEAL SYNTHETIC
RUBBER GLOVES

Nature's defenses weren't intended to withstand acids, oils, solvents used in modern industry. Skin protection ... complete, comfortable, and worker-acceptable ... is assured by hard-to-snag, abrasion-resistant Surety Turn-Cuffs. They're made of better synthetic rubber with 14 times service life of natural rubber, other synthetics. Patented design for maximum safety when working in liquids. Turn-Cuff up stops fluids running down arms. Cuff down adds two inches welcome safeguard. . . . Get Surety for SAFETY!



Send for your Surety Glove Selector —takes the guess work out of glove buying. Do it now!



THE *Surety* RUBBER COMPANY
CARROLLTON • OHIO

When inquiring specify CP A4050 — see handy form pages 2-3

Super Light Ball Bearings for Use in Restricted Locations

May replace plain bearings or bushings; for use in small motors, precision mechanisms, etc.

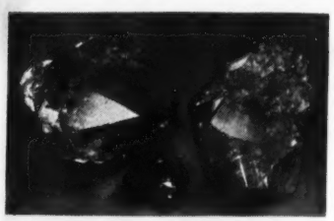


A new series of super light miniature ball bearings is now available with outside diameter of 5/16" and bores of 7/32", 3/16", 5/32" and 1/8". The bearings are manufactured of chrome bearing steel and finished to precision tolerances of +.0000 —.0002. They are shown in actual size at the left, and it can be readily appreciated that they will occupy the smallest possible space — furnishing all the advantages of anti-friction operation in restricted locations where they can replace plain bearings or bushings. The bearings are designed for use in small motors, computers, electronic equipment, drive movements of recording devices, testing and laboratory equipment and supporting the moving parts of various precision mechanisms. The bearings accept unusually heavy loads and high speeds for their size and weight. (Miniature Precision Bearings, Keene, N. H.)

*

"Brazilianite" — New Mineral And Semi-Precious Stone

Remarkable size of crystals is outstanding feature; one weighing approximately 900 grams



Two large "Brazilianite" crystals

The American Museum of Natural History and the National Museum in Washington late last year announced the discovery of a new mineral and semi-precious stone. Appropriately named "Brazilianite" after the country of its discovery, it is a combination of sodium, aluminum and phosphate. It is greenish yellow and quite lustrous. Glass like in appearance it ranges from translucent to transparent. The minerals fremontile and amblygonite are chemically about as closely related to the composition of the new mineral as any material found, assuming that the lithium of amblygonite has been replaced by sodium. X-Ray photographs of all three have shown that "Brazilianite" is distinct from either of these minerals and more detailed examination of the crystallography indicates convincingly that this mineral is new to science. "Brazilianite" is especially noteworthy as a new mineral because of the size and perfection of the crystals. "Brazilianite" is distinct from any known mineral in both its physical and chemical properties. It appears to be the first reported compound of a new group of minerals, and by replacement of some of the elements in "Brazilianite", it may some day be expanded into quite a series of minerals. Braziliante is soft and therefore unlikely to become an outstanding or popular stone regardless of the beauty it may possess. (Data — Dr. Frederick H. Pough — American Museum of Natural History.)

How to Select a Screw Conveyor

(If that's what you need)

Screw conveyors offer many advantages in handling bulk materials. They are efficient in power, space, and maintenance requirements; first cost is relatively low. They permit the use of dust and moisture-proof enclosures. They can be used alone or with other types of conveyors.

But to secure maximum efficiency, first be sure a *screw* conveyor is the type you should have; second, be sure you select the right *kind, design,* and *size* of screw conveyor.

To be sure on both points, consult a Link-Belt Materials Handling Engineer. His broad experience, and knowledge of all types of equipment will be helpful. And he can give you unbiased advice, because Link-Belt makes a wide variety of conveyors.

LINK-BELT COMPANY

Chicago 8, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities.



A great deal of information on screw conveyors is available in Data Book 1289. Diagrams, tables, illustrations—128 pages. Send for a copy today.



HELICOID

Continuous rolled flights, one piece, secured to shaft by welding and formed steel reinforcing lugs. Large pipe gives greater torque; no laps or rivets to catch dirt, or to wear out. Tapered cross section for greater strength.



SECTIONAL FLIGHT

Individual flights riveted together, secured to pipe or shaft with forged steel lugs. Easy to repair by renewing sections; costs less to make special sizes, types, materials.



RIBBON

For sticky materials such as molasses, raw sugar, hot tar, asphalt, etc. Available with beveled or straight edges, helicoid or sectional flights, single, or multiple ribbon for mixing action.





FOR ABRASIVE MATERIAL

Conveyor flights of special abrasion resisting metals are available; or sectional flights cast in iron, alloys and steel. Case hardening or stellite treatment if needed.



CORROSION AND HEAT RESISTANCE

Corrosion resisting materials such as aluminum, bronze, copper, monel, stainless steel and others can be used when available and when justified. Heat resistant alloys or extra heavy flights are available for high temperature applications.





FOR MIXING

Multiple ribbons or paddles in various designs can be used as continuous or batch mixers for light or heavy materials, dry, damp, or wet.

FOR LIFTING

Helicoid Rotor Lift, with special flighting, hung from top thrust bearing, in dust-tight steel housing.



LINK-BELT SCREW CONVEYORS

COLLARS · COUPLINGS · HANGERS · TROUGHS · BOX ENDS · FLANGES · THRUSTS · DRIVES

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SYNTRON

"Pulsating Magnet"

ELECTRIC VIBRATORS

The Easy Economical Way to Handle Materials

ELECTROMAGNET VIBRATORS to assure a free flow of materials from bins, hoppers and chutes.

VIBRATORY FEEDERS controlling the flow of various materials to crushers, grinders, driers, belt conveyors, etc.

Write for catalog data.

SYNTRON CO., 110 Lexington Ave., Homer City, Pa.

SYNTRON

"Vibra-Flow"

VIBRATORY FEEDERS





When inquiring specify CP A4052 — see handy form pages 2-3

IDEAS

Cold Room Tests Rubber, Other Materials; Temperatures To —90°

Entry room is provided with "No-Frost" unit making it unnecessary to defrost cold room



Removing rubber tubing from refrigerator in cold room

A new cold room in which rubber and synthetic rubber compounds and products of many types, plastics and other materials can be tested at temperatures down to 90 degrees Fahrenheit (90 below zero) has been installed by The B. F. Goodrich Company at its Akron, Ohio plants. Temperatures in the cold room can be varied from 50 above to 90 below Fahrenheit. Thirty feet long, 15 feet wide, the cold room has five working units, each six feet square, cooled by a three stage compressor unit and a single stage compressor using Freon 12 and 22 as refrigerants. Each unit operates separately, with electrically controlled temperatures charted for a 24-hour study at different levels. The new unit is large enough to permit tests of equipment under temperatures found in the colder parts of the United States and Canada, as well as those encountered in high altitude flying. Capable of taking a load of 250 pounds of rubber, synthetic rubber or plastics, 500 pounds of steel or 100 pounds of oil, each unit is equipped with a door having a non-locking catch, and an alarm operated from within the unit as further protection against locking in the operator. All operators wear electrically heated clothing. Four of the units have temperature ranges from 50 above to 65 degrees below zero, while the fifth has a range from 50 to 90 below. The cold unit has 16 inches of insulation on the sides and top and 19 inches next to the floor. The large entry room is provided with a Niagara No-Frost unit to absorb all moisture, making is unnecessary to defrost the cold room. Moisture is distilled off outside.

Company research on the effect of severe cold on rubber products, dates back to the winter of 1933-34 when hydraulic brakes on some cars in northwestern United States and Canada would not operate after they had been outside several hours. Examination disclosed that the rubber cups, normally flexible and pliable became brittle and contracted the sealing edges until they were smaller than the diameter of the cylinder they were intended to seal, no longer exerting the necessary pressure. New compounds which would work satisfactorily at 40 below had to be created. First efforts to test effects of low temperatures on rubber compounds was immersion of samples in cups of alcohol cooled by dry ice. This was soon discarded, however, because temperatures could not be readily and accurately controlled, and because of the solvent effect of the alcohol on the compounds. The first refrigeration room was then created. The new unit is thus the latest development of the company's research on testing under extreme cold, with the lessons learned over many years incorporated in its design and methods.



Ready now . . . a *new, complete line* of finer precision resistors! *Available from stock in* ½ watt and 1 watt units in a wide range of values, in various types of mountings and terminals . . . or *made to order*. Includes non-inductive pie-wound vacuum impregnated units . . . single layer-wound vitreous enameled units . . . non-inductive pie-wound hermetically glass sealed units. *Write today for Riteohm Bulletin No. 126.*

OHMITE MANUFACTURING COMPANY

4918 FLOURNOY STREET • CHICAGO 44, U. S. A.

***Be Right with* OHMITE**

RHEOSTATS • RESISTORS • TAP SWITCHES

When inquiring specify CP A4053 — see handy form pages 2-3



When inquiring specify CP A4054 — see handy form pages 2-3

Adjustable Plastic Quadrangle

Combines many drafting features in one instrument



Quadrangle — 4" x 11"

An adjustable quadrangle combining many drafting features not usually available in one instrument has been announced. The new plastic drafting tool is called the S&J Quadrangle by its designers, the Stewart-Jackson Instrument Company, A. G. Bartlett Building, Los Angeles 14, California. Angles from 0° to 90°; pitch scales from 0 to 24/12; percentage slopes from 0% to 100%; sine or cosine functions and tangents may be found with the S&J Quadrangle. This instrument has eight drawing edges, is rectangular in shape, and may be used as a triangle. Draftsmen engineers, and designers will find the body and arm of the instrument blank so the user may add his own most-used cut out symbols and measuring scale. The overall size of the drafting tool (4" x 11") is convenient for desk drawer, brief case, or coat pocket.

★

Flyer's Sun Glasses Coated With Stainless Steel

Shield eyes from sun or bright sky above or glare from below



Glasses with stainless steel coating top and bottom

Stainless steel coating of glass has been an important development that has contributed to better visibility and eye protection for military pilots. This has been accomplished through the use of stainless steel coatings on sun glasses and camera lenses. The sun glasses shield the flyer's eyes from either the sun or the bright sky above, and glare from water, sand, or other reflecting surfaces below. Through the center of the lens they are comparable to the regular sun glasses and transmit about 20 % of the light. This is sufficient for normal daytime vision in sunlight. They are coated with a stainless steel film starting with a zero thickness at the center of the lens and gradually increasing toward the top and bottom of the lens so that the light transmission at these points is about 1/10 of 1% — sufficent for comfortable vision while looking direct at or just off the edge of the sun. These sun glasses are made with either the gradation on both top and bottom, or on the top only. With the gradation on the top only, the wearer finds that the landscape looks the same as through ordinary sun glasses, while the bright sky is converted into a cool overcast. Illustration shows top and bottom coating. The photo was taken with the light reflected from the front of the lens surfaces. (Bausch & Lomb Optical Co., Rochester, N. Y.)



"I FOUND a way to save $24,480.00 in my Wastebasket"

"Something caught my eye in the wastebasket . . . a trade journal I had flipped through and discarded. It was turned up to an ad which promised a 46% saving in material handling costs. When they talked about cutting my handling costs that much, well, I wanted to be shown.

"Literature told how this saving could be accomplished simply through the use of a bright, shiny orange and black electric truck called 'Transporter' . . . the miracle truck that lightens life's loads. It was an impressive story. As a result I ordered one, and an A.T.C. Specialist showed up with it to demonstrate what they claimed.

"He piled 6000 pounds of our most unwieldy product on it. Then asked for one of our stenographers . . . and she promptly walked off with the load as easy as she'd powder her nose. Her thumb pressed a button, her hand gently guided it. That's all there was to it. Husky truckers accustomed to a three-man operation moving similar loads were amazed . . . couldn't wait to try this wonder truck that meant for them an end to back-breaking, gruelling toil.

"I was more than sold on Automatic Transporters. They have cut our material handling costs 46% . . . a solid $24,480.00 saved*—the equivalent of $244,800.00 worth of increased volume on a 10% profit basis. That's the money-saving, profit-making opportunity I found in my wastebasket."

Such savings may be duplicated many times over during the life of Transporters . . . may be multiplied many times depending on the size of your material handling operation. Mail the coupon for complete facts.

Remember: Only AUTOMATIC Makes the TRANSPORTER

Transporter
A PRODUCT OF AUTOMATIC
Lightens LIFE'S LOADS

*Case 10 in "Automatic Savings Parade"

AUTOMATIC TRANSPORTATION COMPANY
Div. of The Yale & Towne Mfg. Co.
41 West 87th Street, Dept. C, Chicago 20, Ill.

Please mail me, without cost or obligation, complete facts about AUTOMATIC TRANSPORTER, the miracle electric truck . . . plus *proof* that it has cut handling costs in half.

☐ Have an A.T.C. Material Handling Specialist call.

Company Name.....

By.....Position.....

Street Address.....

City.....State.....

When inquiring specify CP A4055 . . . see information request blank, pgs. 2-3



The outstanding advantage available with Diamond "S" Forged Boiler and Tank Accessories is a more generous margin of safety for the protection of both men and equipment in the operation of fired or unfired pressure vessels. Diamond "S" Forged Boiler and Tank Accessories were developed as the result of scientific analysis of requirements of pressure vessels and the practical application of well-known and highly desirable engineering principles. The complete line of Diamond "S" Forged Boiler and Tank Accessories includes: Manhole Cover Assemblies, Handhole Cover Assemblies, Special Welding Street Ells, and other similar devices, all of which are forged to close tolerances from suitable metals, and fully meet and exceed A.S.M.E. requirements for steel used in pressure vessel parts.

Catalog No. 10 illustrates, describes and lists a complete line of Forged Steel Boiler and Tank Accessories and contains technical data and general information about the use and application of such products. Write for copy of Catalog No. 10 on your business letterhead.

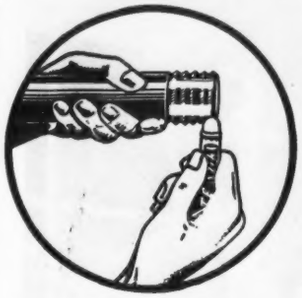
THE STEEL IMPROVEMENT & FORGE CO.
1000 East 64th Street **CLEVELAND, OHIO**

When inquiring specify CP A4056 — see handy form pages 2-3

IDEAS

Pipe Joint Compound Stick

Clean, quick application to metal, plastic threads



Compound stick in handy holder

Pipe joint compound is now offered in handy stick form, ready for instant use. Encased in a convenient cardboard holder, the stick may be carried and the compound applied to pipe whenever desired by a few strokes of the stick across the pipe threads. It spreads and fills thread when pipe is turned. This "Pipette-Stik" is economical as it prevents waste of compound, only the necessary amount of compound to insure perfect sealing is applied. It contains no lead and no injurious ingredients and thus is very suitable for food and refrigeration piping. It may be used in connection with lines for air, water, steam, acid, gas, brine, sulphur dioxide, gasoline, oil, propane, Freon, etc. For lubricating, sealing pipe joint threads, nuts, bolts, gaskets, turnbuckles. Test of this material was made by independent laboratory and indicated its effectiveness with gasoline, oil, butane and Freon. ("Pipette-Stik" is made by Lake Chemical Co., 607 N. Western Ave., Chicago, Ill.)

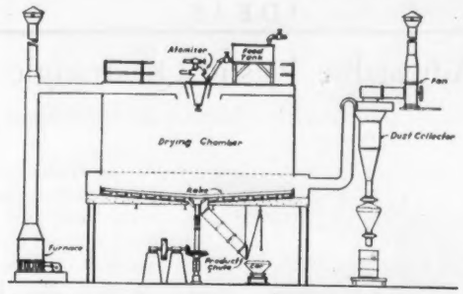
★

Miniature Power Plant Permits Convenient Study of Operations

Embraces all equipment components of standard plants in space 10 x 15 *feet*

A miniature educational power plant, designed to permit convenient study of all operations of any type of industrial or city standard power plant, has been developed by the General Electric company for use in laboratories of engineering colleges. The complete, co-ordinated "packaged" unit occupies a floor space of only 10 by 15 feet and stands approximately six feet high in contrast to a standard power plant that would need a two-story half block long building to house it. Total weight of the unit is approximately 20,000 pounds as contrasted to some 1,000,000 pounds a city power plant would weigh. Despite this diminutive size, the "Lilliputian" power plant embraces all equipment component to its commercial "big brothers" including two 20 kilowatt steam turbine generators, a motor with a genuine "load," complete four panel switchgear equipment, a condenser, miscellaneous piping, and a foundation.

During operation, total power of 40 kilowatts generated by two steam turbine generators is dissipated by an electric motor "load," driven by a water break. The unit requires only a supply of steam ranging from 125 to 250 pounds and a source of circulating water for condensing purposes. New education methods, emphasizing the technique of demonstration, and a current trend toward more practical education are responsible for development of the miniature unit. Use of a standard size power plant, regardless of its success in armed forces training, is not feasible for individual colleges during peace time, but we believe this new technique of demonstration can be made adaptable through use of a miniature power plant. A miniature unit, in fact, holds an advantage over a standard power



"INSTANT DRYING"

A Simplified, Low-Cost System for

Drying Chemicals

Real-life tests in industry have been demonstrating the advantages of the modern INSTANT DRYING unit.

For instance, the manufacturer of a chemical widely used in industrial products brought it to the Instant Drying Laboratories for test. The results were astounding! Drying capacity was greatly expanded. The equipment was installed and the original unit has been in busy operation on a 24-hour schedule . . . with *production even larger* than the laboratory tests had shown!

The special working features (patented) of INSTANT DRYING SYSTEMS are paying many dividends. This trouble-free and diligent worker demands only a minimum of labor and attention. Less power and a smaller connected load are required.

Write to us on *your* drying problem. We shall answer your questions and send you detailed literature on the INSTANT DRYING unit.

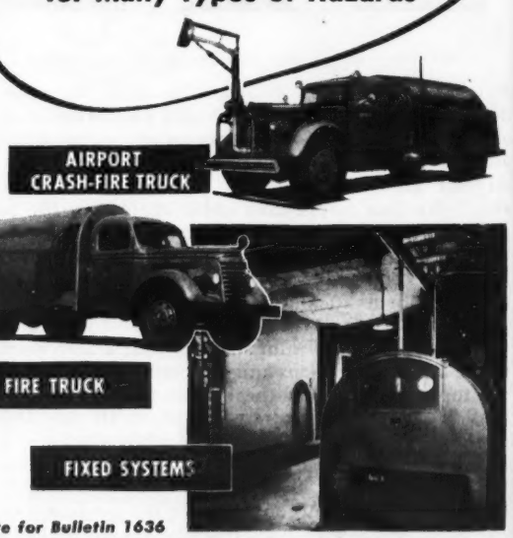
INSTANT DRYING CORP. **101 Park Avenue New York 17**

Testing and Research Laboratories at Poughkeepsie, N. Y.
Engineering by CLARK, MACMULLEN & RILEY, INC., NEW YORK

When inquiring specify CP A4057 — see handy form pages 2-3

CARDOX

Has Broadened the Scope of CO_2 FIRE PROTECTION for Many Types of Hazards



Write for Bulletin 1636

CARDOX CORPORATION
Bell Building **Chicago 1, Illinois**

When inquiring specify CP A4058 — see handy form pages 2-3

PRECISION BORE GLASS TUBING

. . . Guaranteed

Mercury Precision Bore Glass Tubing can help solve your production problems. Maintaining a tolerance of but .0002 inches Mercury Precision Bore Glass resists corrosion; cuts down friction and has an expansion factor of but .000004 inches. It eliminates calibrating problems in many cases.

★ ★ ★

Pressure nozzles, bearings, pumps, ejectors and metering devices last longer and are more accurate when made of glass. Precision Bore assures interchangeability.

Consult our engineering department.

MERCURY GLASS

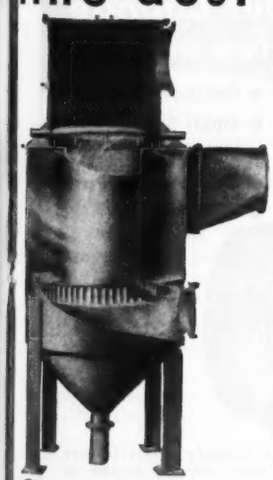
COMPANY, INC.

George W. Pfleghar, Pres.

PLEASANTVILLE, N. J.

When inquiring specify CP A4059 — see handy form pages 2-3

RID your plant of fine dust and fumes



Cut-away view of Type "S" Hydro-Clone.

Whiting Type "S" Hydro-Clone suppresses fine dust and fumes with water. It absorbs obnoxious gases and reduces dust particles to harmless sludge. The sludge-laden water drains to a tank where sludge settles out before the water is recirculated.

The unit is self-cleaning, and has no moving parts, screens, cloth bags, or spray nozzles—hence maintenance is eliminated.

The Type "S" Hydro-Clone will handle air or gas at temperatures up to 1200 F. Available in capacities from 2,000 to 30,000 cfm. Write for Bulletins FY-110 and FY-114.

WHITING CORPORATION

15667 Lathrop Ave.

Harvey, Illinois

FREE New booklet of Practical Pointers on Dust Suppression. Ask for Bulletin FY-129.

When inquiring specify CP A4060 — see handy form pages 2-3

IDEAS

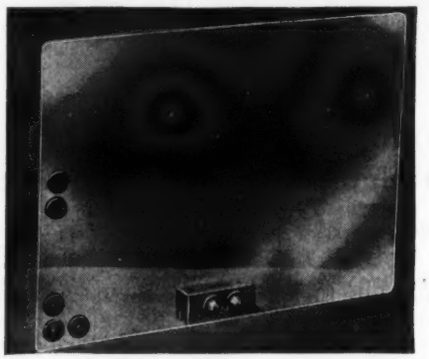
plant, he pointed out. Usual study systems employed by colleges call for one or two field trips per semester, during which classes visit the nearest power plant. Because of the few number of trips and the tremendous size of the plant, each student receives a specific study assignment, sees only a part of power plant operation, and thus misses the overall perspective. A miniature power plant however can be set up so that each member of a class can watch the entire operation at once, and as many class periods as are deemed necessary can be conducted on a daily basis at the location of the unit.

★

Magnetic-Grip Protective Shields

Transparent plastic shields easily, securely anchored to any ferrous surface

Magnetic Grip-Shields are a recent development for protecting eyes of workers and those in the vicinity of machines which produce flying chips and dust in operation. These shields are magnetically held in any position on machine tools, magnetic principle holding the shield to any ferrous surface. The shield is fashioned of true vision transparent plastic and permits an unobstructed view of the operation. The standard line of shields comes in sizes 6″ x 8″, 6″ x 10″ and 8″ x 10″. A horseshoe magnet is permanently attached to the transparent plastic which is .060 thick. Unless otherwise specified, the magnet is attached to the short side of the shield. Special requirements are provided for by custom-built shields. These meet such requirements as might be encountered in installing shields on engine lathes, milling machines, and in cutting brass plate on stencil jobs. In the latter case the shield follows the arm of the pantograph adequately covering the point of danger at all times. The magnetic shield illustrated is the latest addition to this line and is made of .100 thick plastic and comes in sizes 10″ x 12″, 12″ x 16″ and 16″ x 20″. The shield is drilled with four sets of two holes and the magnet can be fastened in six different positions. The magnet comes separate, unmounted and can be bolted to any one of the six positions that best meets requirements. This is a special magnet 1¼″ x 1¼″ x 3″ and eight times more powerful than the standard horseshoe type used on the small shields. This model serves where a greater area of protection is desired and where excessive vibration on machines calls for a more powerful magnet. A circular illustrates and describes numerous installations and shows the infinite variety of shapes into which the plastic shields may be formed to conform to contours of machinery. (Dilley Mfg. Co., 10251 Euclid Ave., Cleveland, Ohio.)



Magnet can be attached in any of 6 different positions

REDUCE UNPREDICTABLE EMERGENCIES IN

HIGH PRESSURE, HIGH TEMPERATURE PIPE LINES with



Forestall pipe line trouble . . . with pressure-proof joints, tight as a weld, made with Gruv-Seal, Forged Iron and Alloy, Ring Gaskets. Wrench pressure molds metal into grooves—makes a tight seal that stays tight, always—reduces pressure losses and other pipe line trouble. Gruv-Seal, Forged Iron and Alloy, Ring Gaskets are machined to a fine smooth finish and fit grooves perfectly. These gaskets should be used at all flange connections, valve bonnet joints, and at joints where disassembly is a necessary requirement. Available in several different grades of metal for different services. Specify valves and flanges grooved for Gruv-Seal Ring Gaskets—for tight, trouble proof joints. Manufactured by a special forging method which eliminates metal porosity and interlocks the metal fibre lines into a dense, tough structure, Gruv-Seal, Forged Iron and Alloy, Ring Gaskets are exact in every detail, true in diameter, circumference, and in thickness.

●

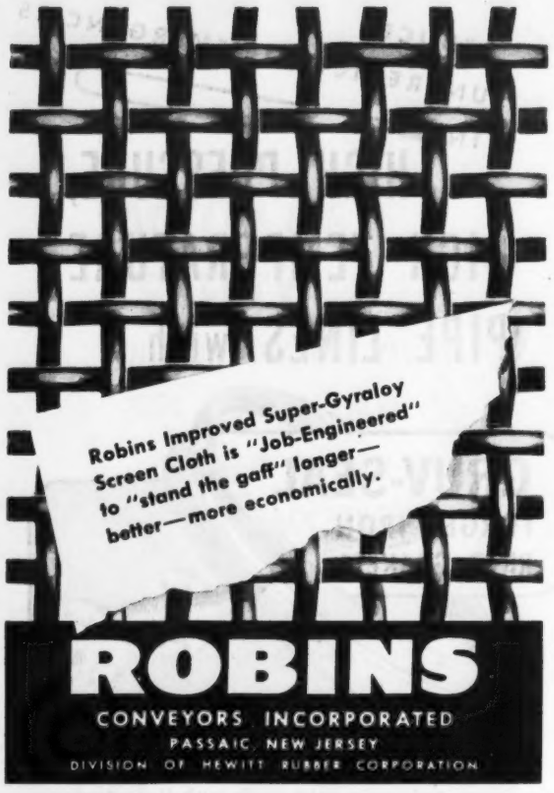


Gruv-Seal Ring Gasket Bulletin 45 contains complete description, and illustrations showing applications of Gruv-Seal Ring Gaskets (Type O), Oval, and (Type X), Octagon; also descriptions of different grades of metal of which these rings are forged for different services. Write for your copy now.

THE STEEL IMPROVEMENT & FORGE CO.

1900 East 64th Street CLEVELAND, OHIO

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When inquiring specify CP A4062 — see handy form pages 2-3

STOP LEAKS

Damp Proof—Water Proof



Leaks, water seepage in concrete walls can be stopped instantly — permanently with FLEXTITE. This material will convert wet basements into bone-dry useful space. Will seal leaks against water pressure. Can be used in elevator pits, tunnels, dams, concrete water tanks, retaining walls. Efficient as a plaster coat for waterproofing and dampproofing.



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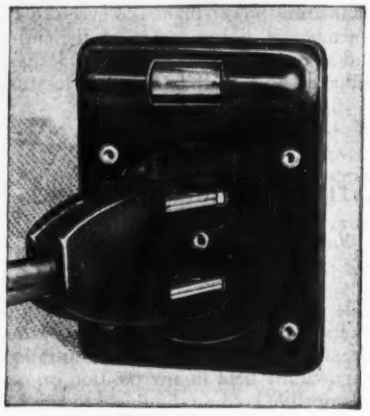
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Please send me complete FLEXTITE information . . . . details of FREE TRIAL OFFER—no obligation.
Name .....
Company .....
Address .....

When inquiring specify CP A4063 — see handy form pages 2-3

IDEAS

Plug — In Neon Pilot Light

For use with standard 110 *volt AC or DC outlet*



Pilot light for standard socket

A wafer-thin neon-light indicator used with any standard electric outlet or female plug indicates "On" or "Off" and is especially useful with appliances that are controlled by switch controlled circuits or with plugs that should be pulled out when the equipment is inoperative. Typical uses that are indicative of its unusually wide application are with soldering irons, electric heaters, toasters, percolaters and other appliances such as heating pads, broilers, embossing sets, solder and glue pots and vaporizers. The tiny red glow is handy in dark places for locating plugged-in cords and outlets. The usual plug prongs slip right through the slots of the indicator. Protected by a metal housing the neon bulb is over the head of the plug, in full sight at all times. It can be operated for as little as two cents per year for current. (This pilot light known as the "Handi-Glow" is the product of Industrial Devices, Inc., 22 State Road, Edgewater, N. J.)

★

Projection Oscillograph Reveals Truth of Electric Eel Discharges

Intensity of discharges of two eels light 33 *two watt neon lamps*

By means of the latest Du Mont oscillograph provided with a special projection lens, the "radar" or exploratory impulses as well as the real lethal shocks of electric eels were shown in impressive wave forms. The demonstration, under the direction of Dr. C. W. Coates, was made before the New York Zoological Society.

A glass-sided water-filled tank about six feet long, with conducting screens of electrodes at both ends, contained the two ELECTROPHORUS ELECTRICUS (Linnaeus). We are told that they are really not eels but rather eel-shaped fish, measuring four feet or more in length and six inches and up in girth. About half the flabby bulk is electric-generating tissue. The electric eel can generate about 500 volts of true electricity and is fully capable of killing a man under certain conditions. It can give off discharges at the rate of several hundred per second and sustained over a period of hours without "running down."

The electricity is produced by neuro-physiological action. In the process certain enzymes are manufactured, which are of immense scientific importance. Therefore the studies of Dr. Coates extend far beyond the solving of the mystery of the electric eel.

In order to demonstrate graphically the nature of the dis-

Hackney **SEAMLESS CYLINDERS**

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Strong, durable and lightweight, Hackney Cylinders have been constructed to assure lowest transportation costs, full protection to product, ease of handling and utmost resistance to transportation and handling abuse. The Hackney cold drawing process makes every cylinder uniform in thickness and temper.

In using Hackney Cylinders you are taking advantage of Pressed Steel Tank Company's advanced heat-treating methods, thorough testing, careful selection of raw materials and complete understanding of each requirement. Write today for full details.



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without Change of Valve or Seat



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- Small Size
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- One Moving Part
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OVER 450,000 SOLD

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YARNALL WARING CO., 125 Mermaid Ave., Phila. 18, Pa.

YARWAY
IMPULSE STEAM TRAP

When inquiring specify CP A4065 — see handy form pages 2-3

charges good use was made of a new experimental projection-type oscillograph recently developed by the Allen B. Du Mont Laboratories, Inc., of Passaic, N. J. This oscillograph obtains the high luminosity necessary for projection by utilzing a new high-voltage cathode-ray tube operated at a total accelerating voltage of 20,000 volts. The vivid green oscillogram or wave form of the cathode-ray tube is projected on to a screen particularly developed for this purpose, by means of a special 6-inch focus lens rated at f:1.5, an exceptionally large aperture for a lens covering the 5-inch diameter cathode-ray tube image. For the purpose of the demonstration, the image was projected on a 3′ x 4′ screen in a shadow box because of the brilliantly lighted auditorium.

The two kinds of discharges produced by the electric eel were demonstrated. First, there is the exploratory impulse or nature's counterpart of radar, in that when such implse strikes an object, it bounces back to the original source and discloses the presence of said object. The electric eel has used the radar principle for millions of years. In the murky waters of certain South American streams where it lives, the electric eels send out frequent impulses which, striking such food possibilities as fish or frogs, bounce back and affect the sensory apparatus of the eel. The second kind of shock is the real thing or lethal discharge. Having detected food or sensed an enemy, the eel discharges a shock of several hundred volts, stunning or killing anything in the vicinity. Dr. Coates demonstrated the intensity of the discharges by lighting 33 two-watt neon lamps arranged as the numerals "50" in keeping with the Fiftieth Anniversary theme of the evening.

★

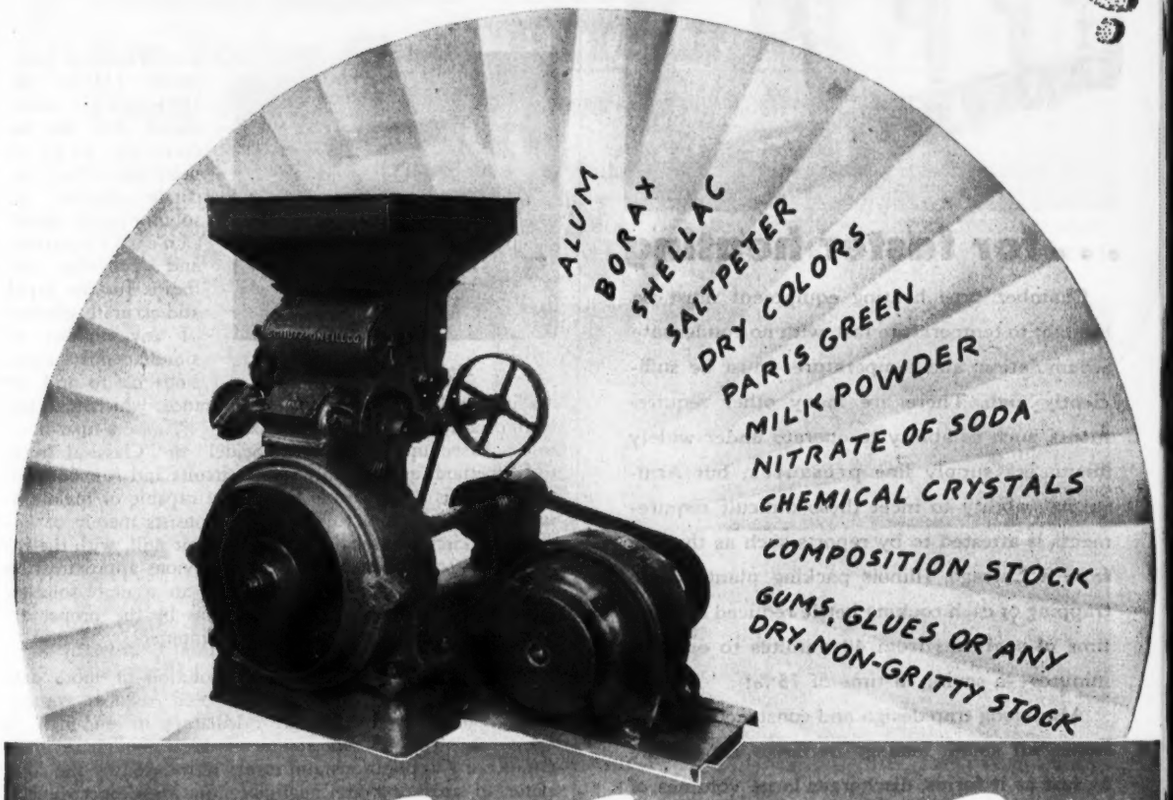
Pipeline Snow Melting Systems

Several installations now in successful use

Engineers have made it possible to avoid snow shoveling by the simple expedient of laying heating pipes slightly below the surface of sidewalks and driveways.

In the majority of pipe-line snow-melting installations, ¾ inch to 1½ inch wrought iron pipes are laid on a base of crushed stone or sand, covered with a strip of heavy felt, and topped with about 4 inches of concrete or blacktopped surface. Steam, when the operation is to be continuous, or hot water, when intermittent, is circulated through the pipes from a heating unit. In some instances this unit may be integrated with the building's heating system; in others it may be connected to an auxiliary unit, such as a domestic hot-water heater. In industrial plants, exhaust steam may be used. Circulation in one installation is started by a control device in which a delicately balanced metal plate is suspended so that the additional weight of snow or ice operates an electrical contact. In some continuously operated units, snow is melted on contact with the ground. Several pipe-line snow-melting systems are in current operation. In Buffalo, New York, a truck driveway, 80 by 8 feet, was kept entirely clear during 1944-45, one of the severest winters on record; a 14-inch snowfall was entirely cleared in six hours. A residential unit, which cost $500, including tearing up a 110-foot driveway, has been in operation since 1940. It reportedly melted approximately ½ inch of ice in 20 minutes from a dead cold start. On another occasion a 15-inch snowfall was removed by this installation in two hours at a fuel cost of 60 cents. (Summarized from bulletin of Arthur D. Little, Inc., Cambridge, Mass.)

WHAT DO YOU PULVERIZE?



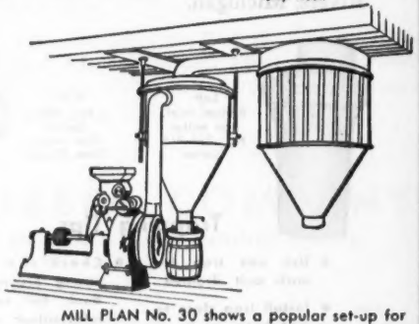
You Can do it *Finer, Faster and Better*

with the SCHUTZ-O'NEILL PULVERIZER

The Schutz-O'Neill Pulverizer is a centrifugal air force impact pulverizer for continuous or batch operation. For extremely fine grinding and uniformity, the principle of centrifugal impact when carried by the air stream has never been surpassed. The product is floated off on air—there is no screen to clog or wear out. Thousands of Schutz-O'Neill Pulverizers have proven their sturdiness, long life, low power consumption, high output and ease of operation. With a range of sizes in several styles, any dry, grindable stock can be efficiently pulverized

CONSULT US ON YOUR PULVERIZING PROBLEMS. Write us your requirements, products to be pulverized, output desired, and send a sample. This in no way obligates you. Literature sent on request.

This is the 20-inch "D" Schutz-O'Neill Pulverizer with Breaker Feeder for lump stock



MILL PLAN No. 30 shows a popular set-up for a 20-inch "D" Pulverizer with Finished Product Bin, Tubular Dust Collector and connecting pipes.

ESTABLISHED 1893

SCHUTZ-O'NEILL CO. DIVISION OF PARTEN MACHINERY CO.

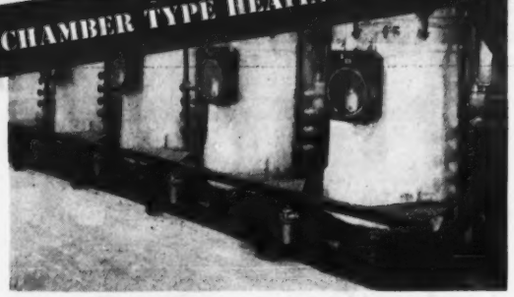
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HOW TO TRAP

CHAMBER TYPE HEATING EQUIPMENT



. . . for faster heating

Chamber type heating equipment must be brought to temperature fast, with no condensate accumulation, and temperatures must be sufficiently high. There are many other requirements, such as ability to operate under widely fluctuating supply line pressures, but Armstrong's ability to meet these difficult requirements is attested to by reports such as the one from a Chicago, Illinois packing plant, where trapping of each cooking kettle reduced cooking time of soybeans from 40 minutes to only 10 minutes—a saving in time of 75%!

Armstrong trap design and construction eliminates all steam leakage, removes condensate as fast as it forms, discharges large volumes of air (500 to 1500 cu. ft. per hr.) and permits operation on an unusually wide range of pressures (1 to 250 lbs.) ARMSTRONG MACHINE WORKS, 880 Maple St., Three Rivers, Michigan.



Left: Bottom inlet, top outlet No. 211-216 Series

Right: No. 800 Series Side Inlet, Side Outlet



Trapping Tips

- Use one trap for each unit drained
- Install trap close to and below unit
- Use ample size steam supply and return lines
- Check the Armstrong Steam Trap Book for valuable information on installation, selection, maintenance and repair of Armstrong traps.

ARMSTRONG *Inverted Bucket* STEAM TRAPS

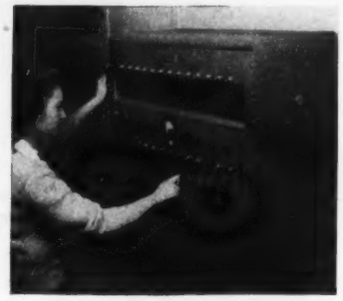
Over a Million in Use

When inquiring specify CP A4067 — see handy form pages 2-3

IDEAS

12 Equation Electrical Computer

Provides fast accurate method of solving linear simultaneous equations



Electrical Computer

The "Electrical Computer" (Model 30-103) just introduced, fills the increasingly urgent need for a fast, accurate method of solving linear simultaneous equations and provides the means for the rapid and accurate solution of any number of simultaneous equations up to and including twelve — equations, for instance, which take the form of $a\text{-}n_1x_1 + a\text{-}n_2x_2 + a\text{-}n_3x_3 + \ldots\ldots a\text{-}nn\text{-}x\text{-}n = m\text{-}n$. Based upon the "Causs-Seidel" or "Classical Iterative" method, using highly stable circuits and rugged components, it is a serviceable instrument capable of maintaining consistent accuracy. Each step consists merely of adjusting a circuit to a balance condition or null, with the instrument itself "remembering" the previous approximation as long as necessary. Convergence to an accurate solution is assured for most practical problems by the proper arrangement of the data set into the computer.

The computer makes feasible the solution of more data without increasing the work-load and reduces computation time over mechanical calculators to one-fifth to one-tenth. The inherent accuracy is great enough for most engineering applications and errors introduced by the computer in analyzing are negligible on Mass Spectrometer or Infra-red data. Because it is so easy to operate, only a short training period is required and it can be operated by those with only average manual dexterity and those whose mathematical background is limited to arithmetic. Several independent sets of equations, up to 12, may be set in the computer and handled separately.

The numerical value of each of the mathematical terms supplied to or obtained by the computer (the coefficients a-ij, the constants m-i and the unknowns x-j) is set on a varible resistor or potentiometer, one being provided for each term of each equation. Column and row selector switches, with indicator lights to reduce possible selection errors, match any given a- or m- potentiometer to a precision four-dial resistance decade. The numbers are set up on the four decade dials, then transferred to the selected a- or m- potentiometer by simply adjusting the potentiometer until a sensitive indicator shows a null. The answers, or x-j values, are obtained on the x- potentiometers and may be read on the same four-dial decade for highest accuracy, or on the direct reading dials with slightly less accuracy. Negative values are readily handled.

Originally developed for Mass Spectrometer and Infra-red data where it materially reduces the computation time without lessening the accuracy of the analyses, the usefulness of the Consolidated Electrical Computer extends to any other field of application involving linear simultaneous equations, such as those occurring in the study of electrical circuits, structures, aircraft flutter analysis and statistics, and is of real value to many industrial and scientific groups for solving problems otherwise too arduous and time con-

Back Again



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✓ Liquid-Proof

Stanzoils

Neoprene-Coated Work Gloves

● Safety red — for hands near moving machines. Stout fabric heavily coated with milled (not latex) DuPont neoprene, which assures more hard wear, won't crack or peel, protects from and resists damage by oils, acids, caustics, lasts longer. Curved fingers for more comfort, easier work. Standard size, knit (R-26) or gauntlet (R-27) wrist. Top quality for industrial service, more for your money. Ask your supplier for Stanzoils — or write for catalog showing full line of all neoprene and neoprene-fabric Stanzoils.

STANZOIL PIONEER

Synthetic Rubber Division

THE PIONEER RUBBER COMPANY

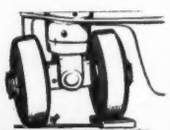
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OVER 25 YEARS OF QUALITY GLOVE MAKING

When inquiring specify CP A4068 — see handy form pages 2-3

This is What Happens When a WELD-BILT Hydraulic Lift Truck Strikes a BUMP . . . (Only ONE Wheel Leaves the Floor)



Pat. Applied for



. . . While on MOST Lift Trucks BOTH Front or Back Wheels Go Up — Tilting Load, or Making Steering Difficult

WELD-BILT TOGGLE ACTION FRONT AXLE PREVENTS THIS

— Keeps Truck Level as Front Wheels Absorb Platform Tilt Without Strain on Front Steering Spindle . . . Avoiding Damage from Jar or Vibration — Floor Wear and Tear — Makes Trucking Easier, Faster.

"Weld-Bilt"

HEAVY DUTY HYDRAULIC LIFT TRUCKS

— Built in Capacities of from 6,000 to 10,000 lbs. Narrow and wide models.



Portable Elevators
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Hydraulic Lift Trucks
Barrel Trucks & Racks

Complete Descriptive Folder of WELD-BILT Handling Equipment sent upon request.

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MATERIALS HANDLING ENGINEERS

When inquiring specify CP A4069 — see handy form pages 2-3

suming. Installation and maintenance are simple and easy. The computer is entirely operated from 115 volt, 50-60 cycle lighting circuit, is unaffected by normal line voltage fluctuations, draws only 100 watts, has no batteries to replace or maintain, and is not subject to normal amplitudes of vibration.
Size: 35" L, 23" H, 19" W. Weight of computer — 200 lbs. Weight of power supply — 35 lbs. (Consolidated Engineering Corp., 620 North Lake Ave., Pasadena 4, Calif.)

*

New Three Core Solder of Flux Provides Continuous Supply of Flux

Offers faster soldering, elimination of dry joints, substantial savings in tin

Solder with three independently filled cores of pure rosin flux offers users faster soldering and elimination of dry joints, in addition to savings in tin. In this solder introduced under the name of Tri-Core a continuous supply of high grade non-corrosive rosin flux is always present. With these three cores, occurrence of "dry" sections in more than one core at a given point is mathematically unlikely. The arrangement of the three cores places them closer to the surface. Since the walls are thinner than those of single core solder, the solder tends to melt more quickly and the heat penetrates to the flux more rapidly, allowing it to flow freely and reach the work ahead of the molten solder. Careful cross-sectional proportioning and the absence of surface seams prevent premature sweating of the flux, making it clean to handle at all times. Tri-Core solder exceeds ASTM, Class A specifications and is available in all alloys, all flux percentages, all gauges. (Alpha Metals, Inc., 369 Hudson Ave., Brooklyn 1, N. Y.)

*

Detector Shows Oxygen Impurity Of 1 Part in a Million

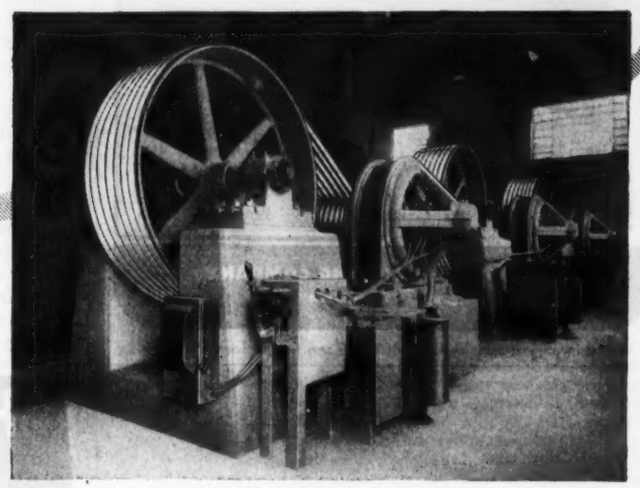
Companion to purifier that removes oxygen from hydrogen, nitrogen, argon and neon

A new instrument, called the Deoxo Indicator detects and measures with uncanny accuracy oxygen impurities in gases. This was developed and perfected during the past year. Attached to any gas line, the Deoxo Indicator rapidly, accurately and continuously indicates oxygen impurities up to one part in a million in other gases such as carbon dioxide, hydrogen, and saturated hydrocarbon gases. Precisely engineered, the instrument is housed in an aluminum casing 15 inches square, and is operated and calibrated by four chromium steel knobs. Its hidden vital center is a precious metal catalyst. Presence of small quantities of oxygen as an impurity is indicated on a galvanometer in percentages, or set-up can be made to actuate a visable recording device or an automatic controller. The Deoxo Indicator is a companion instrument to the maker's Deoxo Gas Purifier and in a sense serves as a check on its functioning. The purifier, also employing a precious metal as a catalyst provides an efficient method for removing oxygen from such gases as hydrogen, nitrogen, argon and neon, without requiring a heat unit. (Baker & Co., Inc., Newark 5, N. J.)

Here is WHY

Your STANDARD Gates Vulco Ropes Are Today Giving BETTER SERVICE Than ANY V-Belts Ever Built Before!

EARLY IN THE WAR, it became perfectly clear that Army tanks, tractors and self-propelled big guns in *combat service* simply *had* to have V-Belts of greater strength and durability than had ever been built before. Gates developed these greatly superior V-Belts through intensified, specialized research — and here is why this fact is now important to YOU: —



✓ **Every Improvement developed by Gates for these Army V-Belts has also been added, day by day, to the quality of the Standard Gates Vulco Ropes which have been delivered to you.**

This is one of the very few instances in which improvements developed primarily for military use could be passed on immediately to you. Ordinarily, *you* would have had to wait. An exception was made in the case of Gates V-Belts because it was recognized that industry needed the best possible V-Belts in order to achieve the greatest possible production —and maximum production was vitally essential.

That is why Gates has been able to pass on to you, day by day, every V-Belt improvement developed for our armed forces during the war—and that is why your *Standard* Gates Vulco Ropes are today delivering far better service than *any* V-Belts ever built before!

All Gates V-Belts are Built with
The Patented
CONCAVE SIDE

THE GATES RUBBER COMPANY
Engineering Offices and Jobber Stocks in All Large Industrial Centers

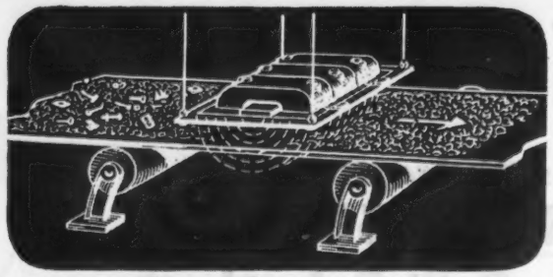
Gates
THE MARK OF SPECIALIZED RESEARCH

463

GATES VULCO ROPE DRIVES

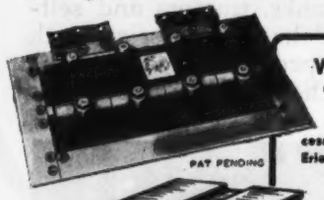
CHICAGO 6, ILL., 549 West Washington. NEW YORK CITY 3, 215-219 Fourth Avenue. ATLANTA 3, GA., 521 C. & S. Nat'l Bank Bldg
LOS ANGELES 21, CAL., 2240 E. Washington Blvd. DENVER 17, COLO., 999 S. Broadway. DETROIT 2, MICH. 223 Boulevard Bldg
PORTLAND 9, ORE., 333 N.W. 5th Ave. DALLAS 2, TEXAS, 1710 N. Market St. SAN FRANCISCO 3, CAL., 170 Ninth St

When inquiring specify CP A4070 . . . see information request blank, pgs. 2-3



ERIEZ *Non-Electric* MAGNETS

● GIVE YOU PERMANENT PROTECTION



Above is the cleverly designed Eriez Magnet for separating small or microscopic ferrous particles from powdery and light granular materials—an exclusive Eriez feature. Note in the top sketch: the Eriez suspended over a belt conveyor.

WHATEVER the materials you may be processing you can eliminate fire hazard and protect your expensive processing machinery by installing Eriez Non-Electric Permanent Magnets . . . Eriez Magnets completely clean iron and steel trash from materials in process at no more cost than the initial installation which for a 4 or 5 inch Eriez is only $35.00. First cost is last cost too . . . Get your copy of bulletin 102A giving full details today.

Address: 16 East 12 St.

ERIEZ MANUFACTURING COMPANY
Erie, Pennsylvania

When inquiring specify CP A4071 — see handy form pages 2-3

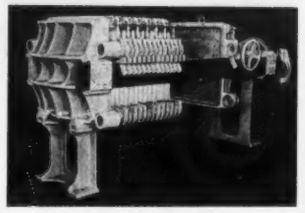
IDEAS

Innumerable Precision Gages Easily Assembled from Small Kit

Designed for production checking; consists of a number of instruments for use with gage blocks

This new gage kit, as implied by its name "Producto-Chek", is designed for production checking. It consists of a number of instruments to be used in conjunction with gage blocks for quickly setting up practically any type of inspection gage. A few examples of these are the dial indicating snap gage, plain bench comparator, dual bench comparator, angle comparator, square comparator, precision height gage, depth gages, and a series of go-no-go snap gages of any size up to eighteen inches. Plug gages and internal gages of any size in steps of .0001 inches can be quickly made up from the set. In addition, gages such as hole to hole, hole to base, parallel bore gages, pitch diameter, and many others can be made up for special applications. A set of holders from 2 to 18 inches in length are designed to carry the gage blocks. Besides the hand held gages that can be formed, a whole series of bench and surface plate gages can be assembled by using the base block, master flat or numerous other attachments. In addition to the usual types of gages, there are several unusual ones. One of these is an indicating snap gage incorporating a dial indicator. Another is an internal gage incorporating a dial indicator. Then, there is an angle comparator using two dial indicators, which is set with a sine bar. When an angle identical to that of the sine bar setup is checked, the dials read alike. Included also in the kit is a multiple

BETTER FILTRATION
for Any Corrosive Condition at Any Temperature and Pressure



Shriver side feed, closed delivery, washing type filter press with visible discharge; plates and frames of stainless steel.

Whether you want to filter a pint or 200 gallons per minute, the Shriver Filter Press supplies everything you're looking for in operating efficiency, speed and ease, regardless of the nature of your product and the necessary temperature, pressure or other factors required to clarify, thicken the slurry, recover the solids, or wash, extract or dry them.

No filtering equipment offers as much performance versatility and economy in more processing fields.

Shriver Filter Presses are made for any filtering capacity — of any metal, rubber, wood or plastics — in stationary or portable units.

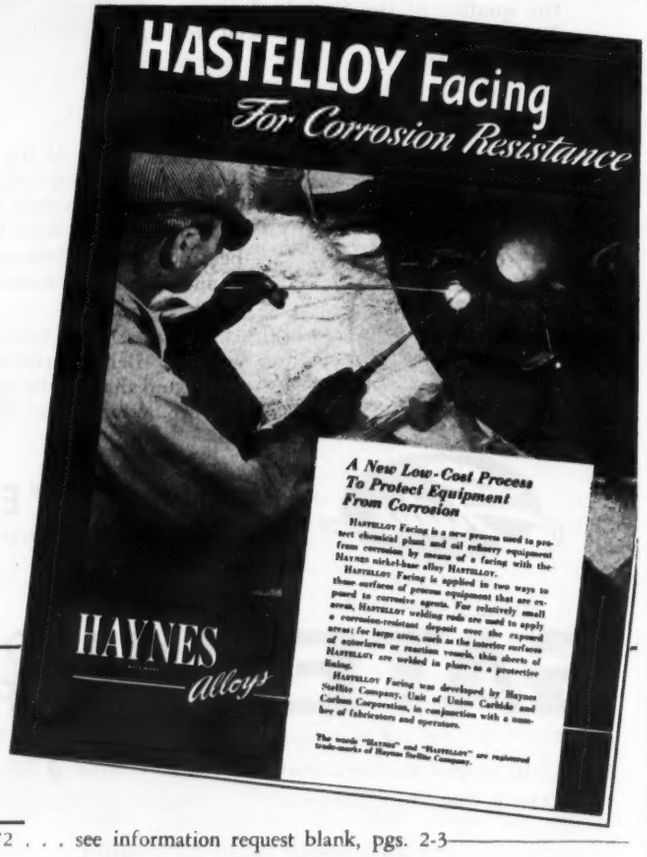
Write for new Catalog No. 45 to T. Shriver & Company, Inc., 846 Hamilton St., Harrison, N. J.

FOR BETTER FILTRATION
Shriver FILTER PRESSES

When inquiring specify CP A4073 — see handy form pages 2-3

Send for this New Folder

● This new folder describes new ways to protect equipment from corrosion. It tells you about the corrosive media the HASTELLOY alloys will resist; parts that can be faced with HASTELLOY alloy; and procedures for facing with HASTELLOY sheet, plate, or welding rod.



HAYNES STELLITE COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
General Offices and Works: Kokomo, Indiana
Chicago—Cleveland—Detroit—Houston—Los Angeles—New York—San Francisco—Tulsa

When inquiring specity CP A4072 . . . see information request blank, pgs. 2-3

ALL-NEOPRENE *Latex* GLOVES
For Every Industrial Use

★ Impermeable to practically all acids and caustics
★ Highly resistant to oils and greases



5 POPULAR STYLES

★**No. 5760-5,** 18" LONG
EXTRA LONG GAUNTLET
GAUGE .030 TO .040
SIZES 10, 11

★**No. 5737-2,** 14" LONG
LONG GAUNTLET
GAUGE .030 TO .040
SIZES 9-10-11-11½-12

★**No. 5705-5,** 11" LONG
SHORT GAUNTLET
GAUGE .020 TO .025
SIZES 9-10-11

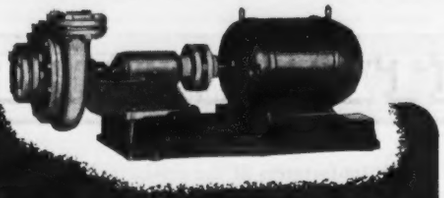
★**No. 5703-5,** 10½" LONG
STANDARD DUTY
GAUGE .015
SIZES 7-8-9-10-11

★**No. 5702-5,** 10½" LONG
LIGHT DUTY
GAUGE .010 TO .012
SIZES 7-8-9-10-11

KEEP HANDS Safe

REQUEST SAMPLES AND PRICES
SEIBERLING LATEX PRODUCTS CO.
AKRON, OHIO
200 - 5th Ave. Bldg., New York — Merchandise Mart, Chicago

When inquiring specify CP A4074 — see handy form pages 2-3



PROGRESS IN PUMPS
For Corrosive Chemicals

The Type Q, shown here, typifies advances users have learned to expect from LaBour pumps. With open impeller, involving no close clearances and without using sealing rings, etc., the Q delivers—and keeps delivering—efficiencies comparable with highest quality closed impeller pumps.

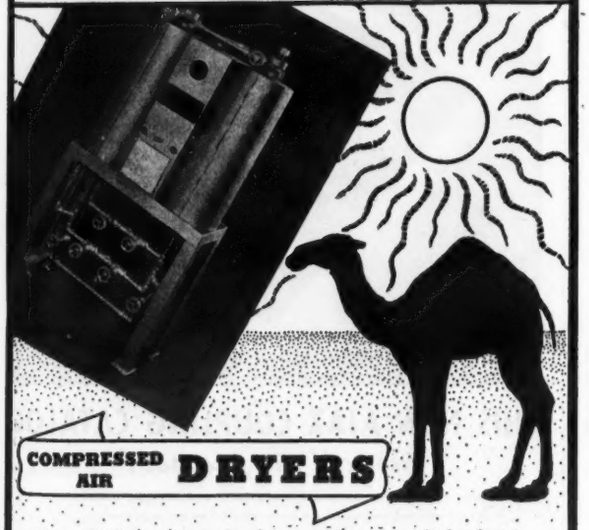
Bulletin No. 50 describes a complete line of LaBour pumps for handling chemicals at lowest cost. Write for your copy.

THE LABOUR COMPANY, Inc.
1571 Sterling Ave. Elkhart, Indiana, U. S. A.

LaBour
CENTRIFUGAL PUMPS

When inquiring specify CP A4075 — see handy form pages 2-3

KEMP DYNAMIC DRYERS



COMPRESSED AIR **DRYERS**

For Sub-zero dew points under varied conditions

● For instrument lines ● For process work
● For inspection and assembly departments

FOR COMPLETE INFORMATION WRITE FOR BULLETIN 25-D.

The **C. M. KEMP MANUFACTURING CO.**
405 E. OLIVER ST. BALTIMORE 2, MD.

When inquiring specify CP A4076 — see handy form pages 2-3

bench comparator that makes two measurements simultaneously, permitting increased speed in production checking. Another outstanding instrument of the kit is an indicating square check gage. With this, the work is placed on a master flat and is simply pushed against a back stop; a dial indicator showing instantly whether or not the angle is 90 degrees. A unique feature of the kit is a set of "wires" of various diameters. These are lapped to the accuracy of gage blocks and are used direct as plug gages or in caliper jaws where square jaws could not function or where combination square and round caliper jaws are needed. Although it is used in conjunction with gage blocks and in some cases a surface plate, the kit itself does not include these items. Any one of the countless gages can be assembled in five minutes or less, and it takes even less time to dismantle and replace in the kit.

Despite the fact that the Producto-Chek Gage Kit will actually do the work of separate gages with gage block accuracy, it weighs but forty pounds and is housed in a streamlined hardwood box 10″ x 20″ x 4″.

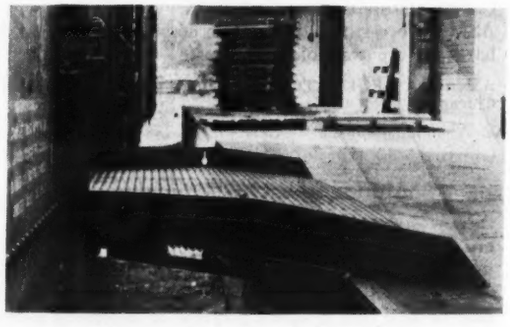
The Producto-Chek Gage Kit offers the small shop the advantage of limitless precision measuring equipment at the cost of barely a dozen separate gages. Thus it enables engaging in all kinds of precision production work not previously advisable because of the high investment in many separate instruments required for proper inspection. Now, with this new kit and its limitless possibilities, there's no prohibitive cost involved. (DoAll Co. — (Gauge Div.), Minneapolis, Minn.)

★

Safety-Type One-Man Bridge Ramp

Positive locking device; high side rails

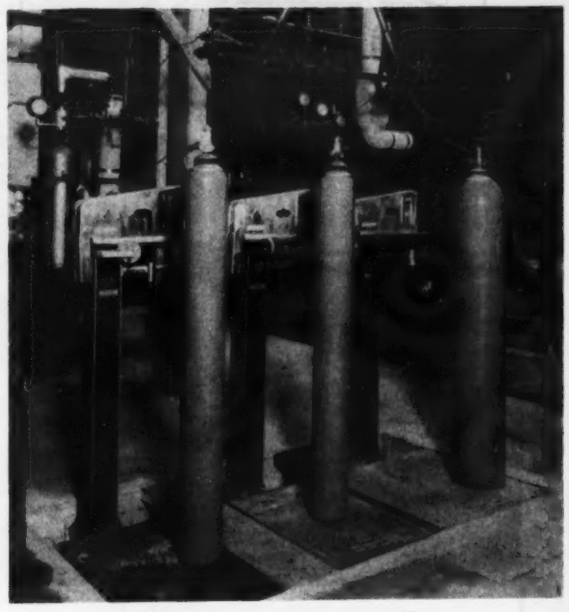
A new safety-type one-man bridge ramp for use between loading docks, cars, trucks, trailers, etc. offers many advantages in speeding shipments handling and protecting workers. Some of the features are: (1) Positive locking device between dock and car or truck and trailer which would prevent any movement when power trucks enter



Ramp fits securely between dock and freight car

the ramp. (2) High side rails to prevent power truck from falling the ramp between the docks and car. (3) Designed for one-man handling, placement, movement or storage. (4) Bridge ramp crowned for different levels which will permit hand-pallet lift truck operation. (5) Skid-proof diamond plate surface. (6) Heavily reinforced and ribbed underneath for extraordinary conditions. (7) Designed for continuous operation without the usual pause in entering ramp by power truck operators. This Penco safety-type one-man bridge ramp is made by Pallet Engineering Co., 625 2nd St., San Francisco, Cal.

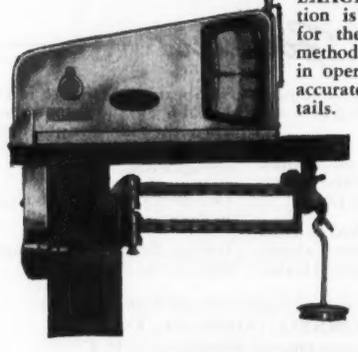
Filling and Weighing Cylinders of Gas . . .



EXACT WEIGHT Indicating Attachments mounted on platform scales filling and weighing cylinders of gas in the Pacific Silicate Co. plant, Berkley, Calif.

do it the Exact Weight Way . . .

Gas in cylinders is just like any other commodity. The only question is how much does the cylinder contain. The most efficient method of packaging is by predetermined weight. The equipment best suited for the operation is regular platform scales with EXACT WEIGHT Indicating attachments. Tare (the empty cylinder) can be taken off on the scale beam. The contents or gas when the cylinder is filled is net weight. When the indicator reaches EXACT WEIGHT the operation is completed and ready for the next cylinder. The method is simple, trouble-free in operation, low in cost and accurate. Write for full details.



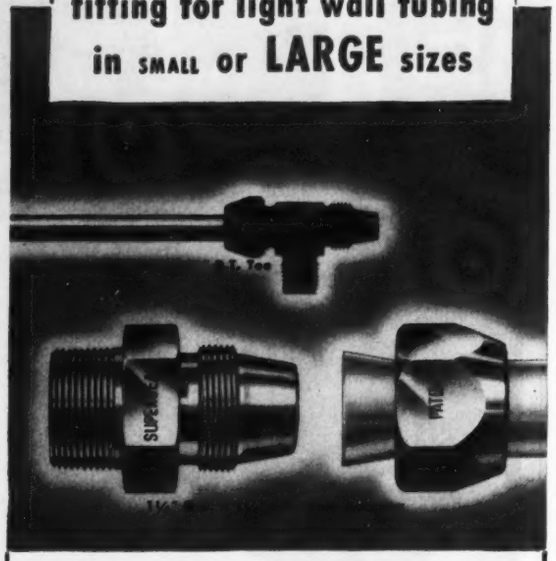
EXACT WEIGHT Indicator — Simplifies act of fast, accurate weighing . . . easy to install . . . furnished with rebalancing attachment for quick rebalancing for portable scales . . . no maintenance . . . trouble-free operation.

INDUSTRIAL PRECISION
Exact Weight Scales

THE EXACT WEIGHT SCALE COMPANY
31 W. Fifth Ave., Columbus 8, Ohio
Dept. E, 783 Yonge St., Toronto, Canada

When inquiring specify CP A4077 — see handy form pages 2-3

Superseal—a better fitting for light wall tubing in SMALL or LARGE sizes



Superseal Assures

1. Easier flaring of tubing especially in large sizes.
2. Leakproof joints even under maximum vibration and pressure.
3. Repeated disconnections without injury to tubing.

Features

Long 10° Tapered Cone provides greater seating area for tubing flare.

Inside Diameter of Tubing uniformly maintained . . . no obstructions at the joint.

Materials . . . Stocked in steel. Malleable iron, brass, aluminum or alloys on special order.

No Shearing Action to injure the tubing at the point of flare when the nut is tightened—instead the tubing is actually strengthened.

Two-part Fitting . . . no rings, no sleeves.

Tubing Bends can be made close to the fitting.

Approved for all hazardous gases and liquids.

GRINNELL COMPANY, INC.
Executive Offices: Providence 1, R. I.
Branch warehouses in Principal Cities

GRINNELL

WHENEVER **PIPING** IS INVOLVED

When inquiring specify CP A4078 — see handy form pages 2-3

NEW LITERATURE ★

The following literature has been issued recently by manufacturers of the products discussed and is available to chemical process manufacturing executives on request. Address requests to the publishers by using handy request form, pages 2-3, or write to the manufacturers direct.

"Askania" Illustrated Dictionary Graphically Explains Revised ASME Process Control Terms

Technical Paper Number 202 — Process Control Terms (As recommended by the Terminology Committee of Industrial Instruments and Regulators Division, ASME) is a new edition of a previous publication issued by this instrument manufacturer (Process Control Terms Technical Paper 100). This publication is an illustrated dictionary covering usage of terms as recommended by the Committee. The preface of the book emphasizes the importance of a consistent and usable set of terms applying to industrial process control. The list covers most of the terms commonly employed in the field of automatic control for industrial processes. The preface further states that automatic controllers are in this paper considered to be only those devices which are constructed and capable of being used in such a way that the complete installation, including the process under control, constitutes a closed loop of action and counteraction operating without human aid. Some phenomenon of the process, called the controlled variable, produced an initial effect upon the measuring means of the controller. If this effect does not correspond with the value of the controlled variable which the automatic controller operates to maintain, the measuring means institutes corrective action. The corrective action restores or tends to restore, the value of the controlled variable to the desired value. Unless this whole loop of initial action and corrective action is present, automatic control is not realized. Anything less than this constitutes some form of automatic operation, rather than automatic control. The initial page in the book contains a diagram and brief data on the "Askania Jet Pipe Principle." This is to permit those using the book to more easily interpret the diagrams which are used to illustrate the control terms. Copies of this illustrated dictionary which deals with these ASME process control terms in connection with "Askania" hardware are available on request.

ASKANIA REGULATOR CO., Dept. CP, 1603 So. Mich. Ave., Chicago 16, Ill.

When inquiring specify CP A4079 — see handy form pages 2-3

★

Monograph On "Quinaldic Acid"

A new sixteen page Monograph has recently been issued on a new analytical reagent "Quinaldic Acid" describing its applications. It is a gravimetric reagent for copper, zinc, cadmium, uranium. In announcing this product it may be said that it shows promise of becoming a very useful analytical tool. It is available in commercial quantities at reasonable cost. Following a comprehensive introduction and general discussion of "Quinaldic Acid" are a number of sections under the following headings: Determination of Copper, Basic Methods for Determination of Copper in Absence of Interfering Ions, Determination of Copper in Presence of Nickel, Cobalt, Manganese, Determination of Copper In Presence of Cadmium, Determination of Copper In Presence Of Lead, Determination of Copper in Iron & Steel, Determination of Zinc, Basic Methods for Determination of Zinc in Absence of Interfering Ions, Determination of Zinc In Presence of Aluminum, Chromium, Beryllium, Titanium and Uranium, Determination of Zinc in Presence of Copper, Mercury, Silver. Determination of Cadmium, Basic Method for Determination of Cadmium in Absence of Interfering Ions, Determination of Uranium, Colorimetric Determination of Iron. The appendix under the heading of specific precipitants lists reagents which can be used to remove a metal ion to prevent it from interfering with "Quinaldic Acid" precipitations; also gravimetric factors. Copies on request.

TOWER DRUG & CHEMICAL CO., Dept. CP, Rochester 1, N. Y.

When inquiring specify CP A4080 — see handy form pages 2-3

★

New Ways to Protect Equipment From Corrosion

A new folder, "Hastelloy Facing For Corrosion Resistance," describes a new process used to protect chemical-plant and oil-refinery equipment from corrosion. Entire assemblies and parts of equipment that must resist chemical corrosion have long been fabricated completely from the HASTELLOY alloys. This folder describes two ways that have been developed for applying HASTELLOY only to those surfaces of equipment that are exposed to corrosive agents. For relatively small areas, HASTELLOY welding rods are used to cover the area with a corrosion-resistant deposit; for relatively large areas, such as the interior surfaces of



THIS NEW AJAX COUPLING CATALOG
just off the presses!

Every man who designs, builds, sells, operates, or maintains direct-connected machinery is invited to get a personal copy of this new catalog covering Ajax Flexible Couplings.

It gives latest working data on all types including Standard, Mill Motor (taper bore), Shear Pin, Bolt-on, Brake Drum and Detachable Hub Couplings.

Phone your nearest Ajax Flexible Coupling representative or write direct to

Patents Make Jobs

AJAX FLEXIBLE COUPLING CO. INC.

Incorporated 1920 **WESTFIELD, N. Y.**

When inquiring specify CP A4081 — see handy form pages 2-3

NEW LITERATURE

autoclaves or reaction vessels, thin sheets of the HASTELLOY alloys are welded in place as a protective lining. The folder gives concise data on the grades of HASTELLOY available and the corrosive media they will resist; parts that can be HASTELLOY Faced; procedures used in HASTELLOY Facing; and procedures for facing with welding rod and with sheet and plate.
Copies of the folder may be obtained on request.

HAYNES STELLITE COMPANY, Dept. CP, Kokomo, Indiana.

When inquiring specify CP A4082 — see handy form pages 2-3

★

Lift Trucks & Portable Elevators

Two recent additions to loose-leaf catalog published by manufacturer of a complete line of portable elevators, built-in elevators, lift-trucks and other materials handling equipment are concerned with lift-trucks and a portable elevator — hinged model with motor and herringbone worm-gear drive combined with magnetic brake all in one unit. The lift-truck folder is in three colors and illustrates the model G hand lift-truck. This truck is so constructed as to permit raising the load with the handle at an angle through 250 degrees — at no extra effort — a convenient feature when operating in crowded quarters. A detailed view presents features of the lifting mechanism. Dimensions of this Model G truck are listed as 18" width; 1¾" lift. Platform lengths range from 36" to 60" and platform sizes carried are from 24-36 to 48-66.
The elevator model described in the new elevator folder may be furnished with either pushbutton or chain control and with platform type to suit the particular use required. Telescopic frame is available instead of hinged frame if desired. Copies of either or both these catalog sections are available on request.

REVOLVATOR CO., Dept. CP, 86th St. at Bergen Turnpike, North Bergen, N. J.

When inquiring specify CP A4083 — see handy form pages 2-3

★

New Booklet on Room-Temperature Setting Resorcinol-Formaldehyde Resins

A new instruction pamphlet covering a series of resorcinol-type resins has just been issued. These instructions are a part of Synvar's "blue booklet" describing the full line of wood-resin adhesives. Synvar's resorcinol resins, Synvaren PLS, are produced in four grades: Synvaren PLS-AA, Synvaren PLS-A, Synvaren PLS-1, Synvaren PLS-2. These resins are designed for many applications and give a large range of properties such as working life, curing time, and ultimate strength as well as a wide price range. Synvaren PLS type resins can be cured at a room temperature of 70° F., at intermediate temperatures, and at hot press temperatures. Hardeners have been developed for these resins to give a variety of properties depending on the application, the required assembly time, and the curing conditions. Synvaren PLS resins can be used for bonding of wood to other surfaces such as metal, glass, etc. It can also be used for bonding of vulcanized fibre, hard rubber, laminated Bakelite, cork, plaster of Paris, glass fibre, leather, etc. The bond obtained with Synvaren PLS resins is boiling water-proof, mold- and fungi-proof and of the highest strength characteristics. The pamplet on Synvaren PLS resins is available on request.

SYNVAR CORPORATION, Dept. CP, Wilmington 99, Delaware.

When inquiring specify CP A4084 — see handy form pages 2-3



HOW SILVERSTITCHING BROKE A BOTTLENECK

"With expanded production of shower cabinets our carton making, using old fashioned methods, failed to keep pace. We installed Acme Silverstitchers and our packing soon drew ahead of requirements, shipments returned to schedule."

USE THE CLOSURE COMBINATION THAT

KEEPS PACE WITH PRODUCTION

SilverStitch — STAPLING WIRE

- One-piece, continuous length, 5 and 10 pound coils . . . cuts threading time
- Galvanized to resist rust, corrosion
- Always uniform in width and gauge
- Makes stronger, surer closures than other methods . . . unaffected by weather

SilverStitchers — STAPLING MACHINES

- Few moving parts . . . vital ones reversible . . . for lower maintenance costs
- Adjustable, single pedal control
- Operate easily, smoothly, quietly
- Heavy duty construction . . . low power consumption . . . for long thrifty service

Sealing Shipping Containers by Stitching is Faster, Stronger and More Economical

ACME STEEL COMPANY

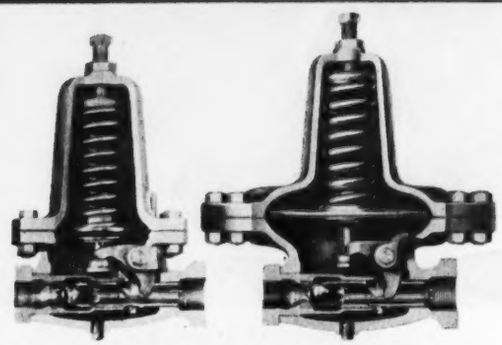
NEW YORK 17 · ATLANTA · CHICAGO 8 · LOS ANGELES 11

When inquiring specify CP A4085 . . . see information request blank, pgs. 2-3

STRAIGHT LINE FLOW

Plays a Big Part

IN KEEPING YOUR PROCESS LINES IN SERVICE



Type 1000-H P normal size diaphragm. Made for delivery pressures over 30 lbs.

Type 1000-L P has large diaphragm. Made for delivery pressures under 30 lbs.

CASH STANDARD

Streamlined TYPE 1000 PRESSURE

REDUCING VALVES

Those pesky valve troubles that you have taken for granted disappear at once and there is smooth going on your lines when you equip with the "1000." The simple answer is that straight line flow design, streamlined in principle, has eliminated complicated parts and small ports and passages. Flow is not hindered — has no obstacles to overcome. You get flow that gives you maximum capacity, close delivery pressure control, and tight closures. The performance of the "1000" is so good that many users say "put the '1000' on the line and forget it."

BULLETIN 962

features the CASH STANDARD Streamlined Type "1000" Pressure Reducing Valve — illustrates the streamlined construction and tells why you get exceptionally long, trouble-free, low-cost performance. Points out why you get no turbulence and therefore can meet peak demand at all times. Explains why straightline flow gives you maximum capacity, close delivery pressure control, and tight closure.



CASH STANDARD CONTROLS.. VALVES

A. W. CASH COMPANY

DECATUR, ILLINOIS

When inquiring specify CP A4086 — see handy form pages 2-3

NEW LITERATURE

New Booklet — "Forming Articles From Extruded Tenite Sheeting"

Nine primary operations in the fabrication of sheet plastic articles, and the equipment which may be used, are described and illustrated in a new 12-page booklet, "Forming Articles from Extruded Tenite Sheeting," just issued by Tennessee Eastman Corporation. Sheeting produced by the continuous extrusion of Tenite is a development which was recently announced in the company's booklet, *Tenite Extrusion.* The general interest expressed in extruded Tenite Sheeting led to the publication of this fabricator's guide to the use of the sheeting. The advantages of sheet extruded from Tenite, Eastman cellulose ester plastics, are said to be the inherent economy of manufacture; the variety of formulas and flows which suit Tenite to many different articles; its wide color range, luster, exceptional toughness, and resilience; and the fact that, in sheet-forming operations, lace and trim scrap may be granulated for reuse in extrusion machines, thus eliminating all waste.

The first operation mentioned is that of cutting and blanking Tenite sheet for use as supplied or for subsequent forming operations. Blanks are cut from sheets or narrow rolls to the required shape. Rectangular blanks are cut in multiple by a power-operated guillotine press. Blanks of other than rectangular shape are cut from strips or coils in punch presses or from sheets in blanking presses. The two types of blanking dies ordinarily employed — "knock-out" and "pickup" — are described. Creasing and folding of blanks may be done on a bar creaser, which consists of a heating element to which creasing bars affording different radii are fastened.

In cementing, the edges of Tenite sheet are bonded together by solvent cements. For rectangular boxes, a type of fixture known as a "corner stayer" may be used; for cementing cylinders, a metal mandrel holds the cylinder in position so that a strong, clear seam may be attained. Drawing of Tenite sheet may be performed on either power- or manually-operated draw presses. As described in the booklet, the drawing operation is accomplished by means of two rings ("hold-down" and "draw") and a punch. The blank is inserted between the two rings, which are heated with thermostatic control. The rings are brought together, the punch passes through them to contact the blank and draw it to conform inwardly to the shape of the punch and outwardly to the shape of the draw ring. A cutoff shears the drawn shape from the trim left between the plates, and compressed air blows it from the punch into the cooling-box plate which is sometimes used to assure a straight-sided container. Embossing is said to be similar to drawing, with this difference: "During drawing, a flat sheet is formed into shape as a result of being pushed or drawn while hot through a die..... In embossing.....the edges of the sheet are held fast while the pressure of an unheated punch stretches and shapes the material against a heated die, increasing the surface and decreasing the thickness." Embossing is used for the forming of unsymmetrical shapes which cannot be drawn satisfactorily, or when the diameter of the blank must be maintained in the formed shape. According to the booklet, this process is faster than drawing, but requires more heat. In beading, the edge of Tenite sheet is turned in or out upon itself to finish it and make it more rigid. Machines described for this operation are of two types: one, a movable beading die on stationary sheet; the other, a stationary die on moving sheet. Hollow articles may be made by blowing heated air between two blanks cut from extruded Tenite sheet. Preheated blanks are held together

IF YOU HAVE A STEAM DISTRIBUTION PROBLEM

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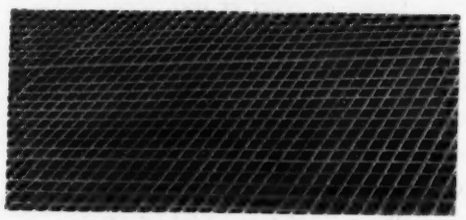


Write for your copy today ●

The Ric-wiL Catalog No. 44 is more than a catalog. Besides product descriptions it contains informative data of value to any engineer, architect, or contractor concerned with the insulation and protection of piping—underground or overhead. Capacity tables, trench dimensions and general specifications are included for Ric-wiL Prefabricated Units, Tile and Cast Iron Conduit Systems.

RIC-WIL INSULATED PIPE CONDUIT SYSTEMS THE RIC-WIL COMPANY · CLEVELAND, OHIO

When inquiring specify CP A4087 — see handy form pages 2-3



specify OPEN STEEL FLOORING for MAXIMUM LIGHT and VENTILATION!

HENDRICK MITCO open steel flooring has rectangular openings that afford maximum light and ventilation — a 90% open area! Mitco performance and service life always measure up to expectations because Mitco's square edge bars are formed into an integral unit and provide a safe, non-slipping, level walking surface. It has no bolts, nuts or rivets to collect dirt and obstruct light. If you will send details of your area to be covered, indicating size, type and location of supports, Hendrick will prepare a Mitco recommendation.

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Architectural Grilles
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Wipe Out "hidden costs" In Storage



Yale Electric High-Lift Fork Trucks are compact, and can "turn on a dime." This means that storage space can be planned with narrower aisles and more complete use of valuable floor area. The forks can be elevated to high levels enabling you to stack goods to the ceiling.

These modern materials handling tools are safe, speedy, economical—handle all types of products from receiving through to final shipment. Workers can move and tier more with less effort.

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YALE

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When inquiring specify CP A4089 — see handy form pages 2-3



New REFRIGERATION CATALOG

No refrigeration engineer, designer, serviceman or purchasing agent should fail to write for our newest Refrigeration catalog. It's free—and chock-full of detailed data on the multitude of refrigeration parts that are both original installation and replacement items. For information or literature write or phone any Weatherhead branch office.

Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO
Branch Offices: New York, Philadelphia, Detroit, Chicago, St. Louis, Los Angeles

When inquiring specify CP A4090 — see handy form pages 2-3

NEW LITERATURE

at their outer edges by the lands of the blowing die set in a hydraulic press. Air pressure causes the two blanks to expand against the die and form the shape. Laminating and heat sealing are accomplished on a hydraulic press capable of supplying about five hundred pounds' pressure per square inch.

Copies of "Forming Articles from Extruded Tenite Sheeting" may be obtained on request.

TENNESSEE EASTMAN CORP., Dept. CP, 10 E. 42nd St., New York 16, N. Y.

When inquiring specify CP A4091 — see handy form pages 2-3

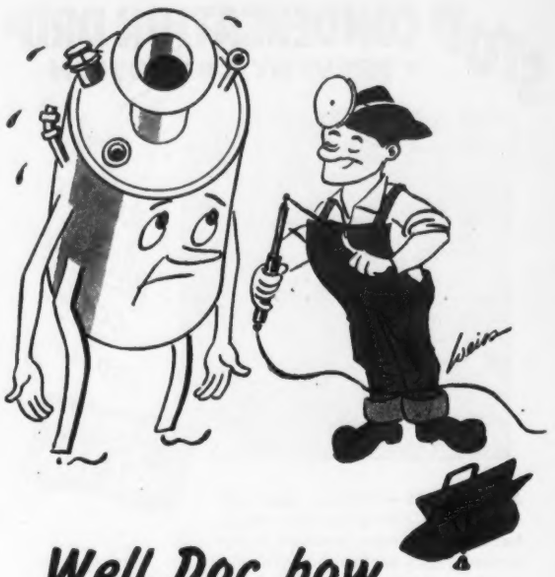
★

Dual Screen Pulverizers Used In Soybean, Meat, Distilling and Ceramic Industries

Dual screen pulverizing units and their use in the process industries are given interesting presentation in a colorful, illustrated booklet. The application of these units to reduction operations in various important industries is treated in great detail. Their use in soybean processing provides an impressive example of how this equipment is advantageously used in this and other oil bearing industries. The manner in which these pulverizers meet the exacting requirements for fine granulation and uniformity for expeller and solvent production methods in soybean plants is emphasized. A recent development of this organization, in cooperation with processors in the distilling industry, is a method for the recovery and processing of dried distillers' grains in a most practical way. In the distilling process, "floured" material tends to become "lost" reducing the alcohol recovery. Lack of uniformity in the reduction of grains leads to uneven fermentation and loss of production in distillation. The uniform grind of these dual screen pulverizers contributes to even fermentation and high distilling yield. The booklet cites the applicatin of these dual screen units in the meat packing industry in handling meat by-products of all types, tankage, crackling and meat scraps. A specialized development is the dual screen, dual feed pulverizer for a wide field of brick, clay and allied products, including minerals, diatomaceous earths, fire clay, clay for tile manufacturers, and concrete products. The clay pulverizer operates on the principle of crushing and grinding by the effect of impact upon the mass. The control of degree of fineness is a feature of interest to clay processors. Finenesses of 6 mesh to 150 mesh are maintained uniformly in production. The center spread of this booklet is devoted to a large sectional photographic illustration showing design and construction and operating features: the standard or dual feeds, and all the other important components in the order in which they play a part in the processing procedure, that is direction of the feed, reduction by breaker bars or knives, second reduction by crushers, third reduction by final sizing blades, final sizing by screens. Copies of this booklet entitled, "The Prater Dual Screen Pulverizer in the Process Industries," on request.

PRATER PULVERIZER CO., Dept. CP, 1825 South 55th Ave., Chicago 50, Ill.

When inquiring specify CP A4092 — see handy form pages 2-3



Well, Doc, how long will I live?

The service life of your stainless steel processing equipment is determined by your fabricator. In the professional skill of his mechanics, welders and craftsmen lies the answer to the useful life of that equipment.

For stainless fabrication requires a specialist — with manpower trained, experienced and equipped for that work. A general practitioner might miss up on something that would impair the strength or corrosion resistance of stainless steel. The special technique required for sound welds — the right degree of heat in welding a seam, the proper finish for your application — round corner construction to allow removal of corrosive materials — these often determine how long your equipment will "live" in service.

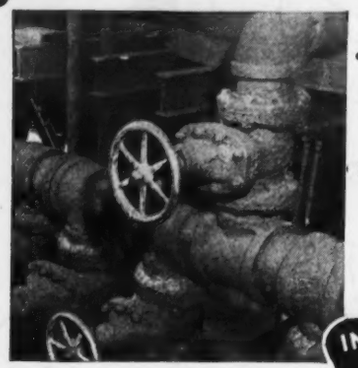
Years of working with stainless steel have shown us that many hidden weaknesses in the finished vessel can be avoided by proper methods of fabrication. For your next stainless steel vessel, consult with us.

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When inquiring specify CP A4093 — see handy form pages 2-3

STOP CONDENSATION DRIP - PREVENT CORROSION



Try this tested plastic cork coating

INDUSTRIAL NoDrip

A SURE CURE—NoDrip, used and endorsed by leading industrial firms, forms a permanent, seamless jacket around pipes, tanks, vats, etc.; shuts out heat, cold, air, moisture; stops condensation dripping; prevents corrosion and rust. Acid, alkali and brine resistant. NoDrip protects and prolongs life of equipment, reduces costly maintenance and replacements. A trial in your plant will prove its merit. 1, 5 and 55 gal. drums. Order from your Supply House.

EASY APPLICATION
Applied like plaster with brush, trowel or spray. Adheres to metal, cement, brick, wood.

NoDrip Handbook on Request
J.W. MORTELL CO.
Technical Coatings Since 1895
530 Burch St. Kankakee, Ill.

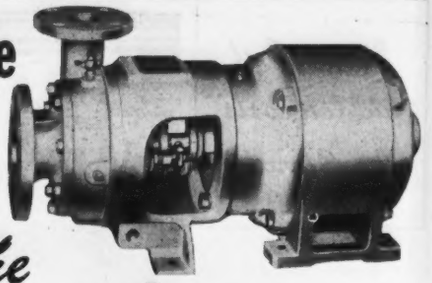
When inquiring specify CP A4094 — see handy form pages 2-3

NEW LITERATURE

Milling Equipment For Earths, Salt, Kailoin Flours and Meals

"Newest and Finest in Milling Equipment" is the title of new bulletin just released, summarizing the manifold equipment requirements of milling and processing plants and pointing out how greater mill efficiency is possible through a one-package purchase plan. The bulletin offers tips on selecting the proper grinding mill; shows three styles of straight-line roller mills described as being easy to install, economical to operate, and simple to maintain; explains how better flake production is possible for any cereal or other flaking requirement with modern equipment; cites the advantages of the square sifter for use in flour mills and for bolting other ground products which require accurate grading through fine mesh screens. Design and operating advantages of heavy-duty reels and purifiers, for bolting, dressing, cleaning and purifying, are explained. Illustrated are eleven units in a complete line of equipment for processing, including driers, coolers, grinders, impact mills, aspirators, bran shorts dusters, packers, and sevice elevators. This milling equipment offers widespread applications, the bulletin points out. For example, the Double Roller Mills, are widely used for production of flour, corn meal, corn grits and other food products; also used extensively for the production of Fuller's earth, diatomaceous earth, salt, kailoin, and grains prepared for brewery and distillery operations. Similarly adaptable to a variety of fields is the Low-Head Gyratory Sifter which is capable of efficiently handling flour of all types, salt, sugar,

Made for You The MOTORPUMP



In a sense the Ingersoll-Rand Motorpump is custom made because the range of sizes enables you to pick the correct size pump to fit your particular application. Heavy-duty units are available in 1½, 2, 3, 4 and 5-inch discharge sizes with motors from 1 to 40 horsepower, handling from 10 to 1800 gallons per minute against heads up to 500 feet. Standard units with most of the features of heavy-duty units are also available in ¾, 1, 1½ and 2-inch discharge sizes.

Call your nearest I-R branch office or your local I-R distributor for complete details.

Ingersoll-Rand
11 Broadway, New York 4, N. Y. 9-669

When inquiring specify CP A4096 — see handy form pages 2-3

Announcing the New Low Cost "Multi" Chemical Mixers



- New type paddles
- Reverse action mixing
- Thorough, low-cost mixing
- Sturdy construction
- Guaranteed to do the job

3 to 60 Cubic Feet Capacity
Open or Closed Type Cover
Discharge Arranged to Suit Conditions

For Your Many Mixing Needs

These new mixers have been designed by men with many years of mixer building and engineering experience. They fill a long felt need for a low cost, high production mixer of sturdy, compact design that will handle a multitude of heavy duty, raw material mixing jobs in chemical, rubber, ceramic and other process plants.

Write for New Descriptive Literature

MULTIPLEX MIXERS
ELMORE OHIO

When inquiring specify CP A4095 . . . see information request blank, pgs. 2-3

NEW CATALOGS!

FOR STEEL VALVE USERS

These New Edward Catalogs contain dimensional data, sectional illustrations, design details, materials and many helpful suggestions in steel valve selection and operation. Be sure they are in your file.



CATALOG 12-B Non-Return Valves, globe or angle, flanged or welding ends; 300 to 1500 lb sp.

CATALOG 12-D Blow-Off Valves, straightway or angle, flanged or welding ends; 300 to 1500 lb sp.

CATALOG 12-E Gate Valves. Cast steel flanged or welding ends, for service from 150 to 3600 lb.

A request on your company letterhead will bring the catalogs you desire.

THE EDWARD VALVE & MFG. CO., INC.
1230 WEST 144th STREET
EAST CHICAGO, INDIANA

Edward Valves
Forged Steel & Cast Steel

When inquiring specify CP A4097 — see handy form pages 2-3

sawdust, wood flour, spices, plastics, hard rubber, confectioner's starch, alfala meal, bolting compound for use in plastics, resins, berium sulphite, flake graphite, mineral and chemical products. To provide the right combination for top efficiency of this milling machinery, auxiliary equipment is recommended. Described are Texrope drives, motors, control, switchgear and transmission equipment, steam turbines, generators and transformers. The bulletin, B6194A, is available on request.

ALLIS CHALMERS, Dept. CP, (632) Milwaukee 1, Wis.

When inquiring specify CP A4098 — see handy form pages 2-3

★

Heat Cost Comparison Chart

An informative heat cost comparison chart is offered in an attractive bulletin which stresses the importance of choosing the most suitable source of heat for processing requirements. Drawings symbolic of the five sources: steam, hot water, electricity, gas and oil illustrate a brief discussion of the use of these singly or in combination. The chart compares costs of fuels as bought, i.e. 100% efficiency. This figure must be corrected for the heater efficiency. Copies of the bulletin containing this chart — titled "We Think You ought to Know" will be sent to those indicating their interest.

J. O. ROSS ENGINEERING CORP., Dept. CP, 350 Madison Ave., New York 17, N. Y.

When inquiring specify CP A4099 — see handy form pages 2-3

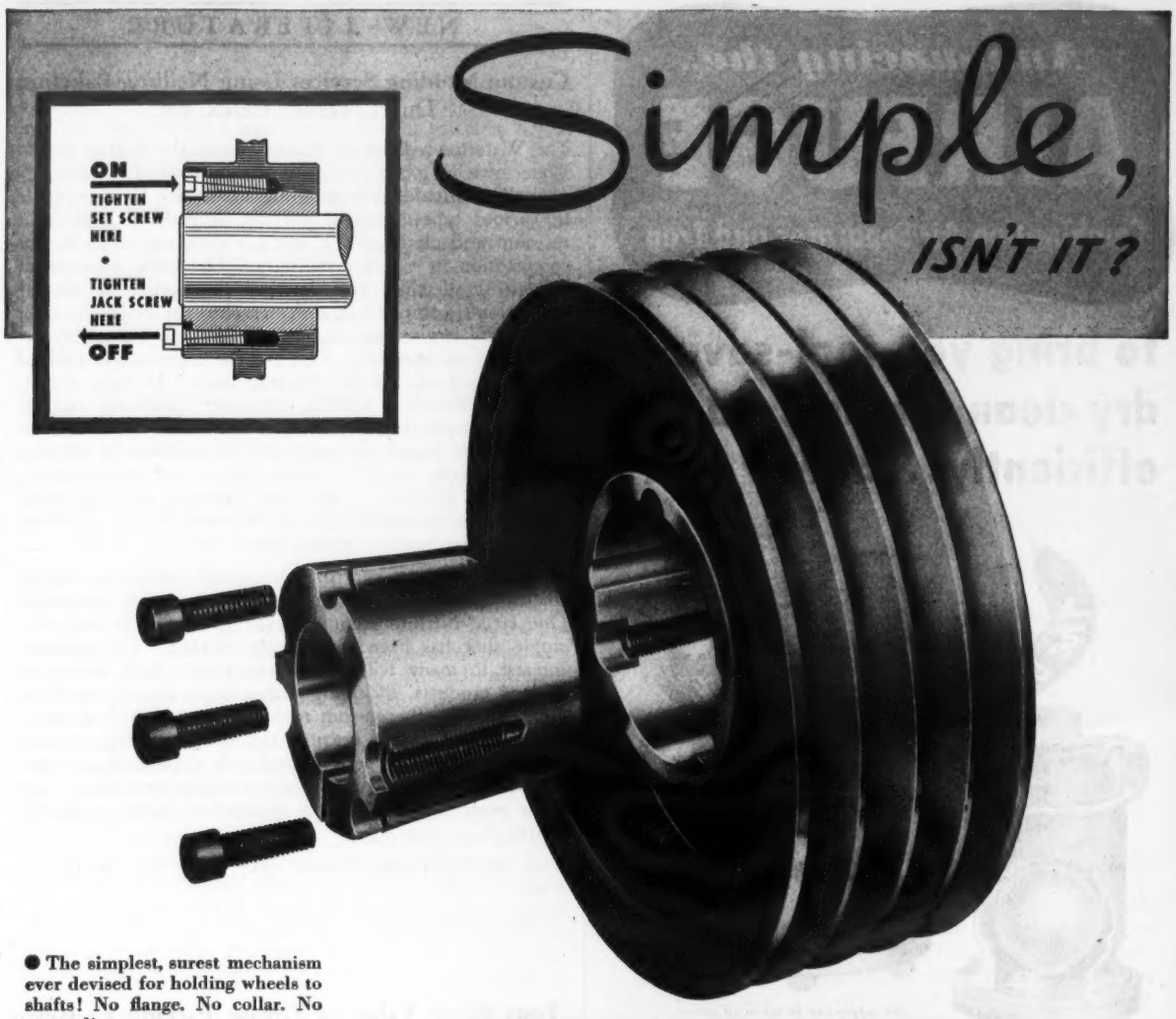
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"Do's" and "Don'ts" On Storing Paper Bags

Important points to be observed in the proper storage of paper bags are discussed in great practical detail in a two-color bulletin. A series of realistic drawings graphically portray how dried out bags will break during filling operations or perhaps fail at other times during service. There is a brief discussion of relative humidity and a table presents figures showing the difference in moisture content of bags at varying degrees of humidity when temperature remains at 75 degrees F. Six very important "Do's" are each illustrated with a drawing, and captions stress the need for observing each precaution so shown. These are (1) Store bags in room where air can be kept moist by allowing steam to escape; (2) Store bags on dunnage, away from floor, and keep floor wet so moisture can be absorbed into the air; (3) Drill small needle holes into horizontal water pipe. Hang cloths over holes. Air absorbs moisture from wet cloths; (5) Open windows on damp day. (7) Use Humidifying apparatus. The value of such apparatus and the several types of humidifiers that may be advantageously used are each illustrated and described. One page of the booket pictures and offers short tips on restoring moisture to paper bags by such means as opening bales and allowing the bags to stand in properly humidified air for 24-48 hours before filling, fanning out the bags to obtain uniform moisture content. Placing bags on covered platform during damp weather and then returning to storage room where proper humidity is then maintained is another suggestion. The paramount "Don'ts" to be borne in mind are: (1) Don't store bags in rooms where heat is excessive as dry heat robs bags of their moisture; (2) Don't store bags under roofs where the heat of the sun gives storage rooms a "dry" attic heat; (3) Don't store bags in any room that cannot be ventilated. Copies of this booklet are available on request.

BEMIS BAG CO., Dept. CP, 408 Pine St., Saint Louis 2, Mo.

When inquiring specify CP A4100 — see handy form pages 2-3



Simple, ISN'T IT?

● The simplest, surest mechanism ever devised for holding wheels to shafts! No flange. No collar. No protruding parts.

● The Taperlock Sheave mounts as a complete unit. Slip it on, line it up and tighten *while sighting*. It's in place on the first try!

● The bushing is wedged into the sheave by means of set screws—with a firmness equivalent to a shrunk-on fit—whether the shaft is standard or normally undersize.

● The Taperlock runs *true*. The bushing extends the entire length of the hub; it provides a *full* bearing surface.

● Close mountings are made possible. No flange nor collar nor other device is required at either end of the sheave hub.

● The Taperlock "unlocks" with less effort than any other sheave—due to its special taper.

● Taperlock Sheaves will be stocked by Dodge Transmissioneers in principal cities—and will be available in ALL stock sizes.

New **TAPER-LOCK** *Sheave*

PATENT APPLIED FOR

Easy on—easy off—locks fast to the shaft! ALL the advantages you've ever dreamed about in a sheave are *here*—in the simplest, quickest acting mechanism ever developed for the purpose!

For full details call your local Dodge Transmissioneer. You'll find his name listed under "Power Transmission Equipment" in your classified telephone directory. Or write

DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA

DODGE
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SIGN OF THE DODGE TRANSMISSIONEER
There are 257 Dodge factory graduate Transmissioneers, located in principal cities, to show you NEW and BETTER ways of transmitting power. See your local classified telephone directory.

When inquiring specify CP A4101 . . . see information request blank, pgs. 2-3

Announcing the

AIRFUGE

Combination Air Separator and Trap

to bring you tool-saving dry clean compressed air efficiently... *at low cost*



Air supply can be taken off either horizontally or vertically.

Automatic trap saves frequent servicing

• Prevent work spoilage and delays—keep pneumatic tools and machines free from corrosion and wear caused from oil, moisture, dirt. Install the centrifugal-acting AIRFUGE. Rugged, *simple*, no moving parts. Low cost so you can use one at each outlet. Tests show compressed air delivered by AIRFUGE is 99% or more free of contamination. Write today for bulletin S-13.





The Swartwout Company

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AIRFUGE

AIR SEPARATOR AND TRAP

When inquiring specify CP A4102 — see handy form pages 2-3

NEW LITERATURE

Custom Molding Services Using Neillite, Bakelite, Durez, Tenite, Cerex, Etc.

The Watertown Book of Plastics traces the history of the Watertown Mfg. Co., also the development of Neillite, — phenolic, formaldehyde molding material. It is available in various types: general purpose, impact, surgical, heat resistant and electrical. It has a wide range of flows for compression or transfer molding. The book presents an interesting, detailed and practical description of the organization's complete custom service. In order to offer a complete service two complete finishing and assembly departments are operated. One for the compression molded products and one for the Thermoplastic. In these departments all finishing, buffing, necessary machining and assembly of individual parts is accomplished. Many unusual and difficult shapes are produced. In addition to molding Neillite, every standard thermoplastic and thermosetting material is handled — Bakelite, Chemaco molding materials, Durez, Lumarith, Lustron, Resinox, Tenite and every other powder, Luctite, Styron, Cerex, etc.

Neillite is made in comparatively small batches of material so that uniformity of molding powder is closely controlled. One large Neillite section, weighing over 5 pounds in a single shot has been successfully molded. Of particular interest to many will be the section on stock molds for various products, including plates, cups, saucers, tumblers, etc. Some of the custom molds illustrated include safety razors, men's pipes, hearing aid cases, washing machine agitators, etc. The book is profusely illustrated and there are many views showing various molding operations. The latter portion of the book is devoted to plastics properties charts.

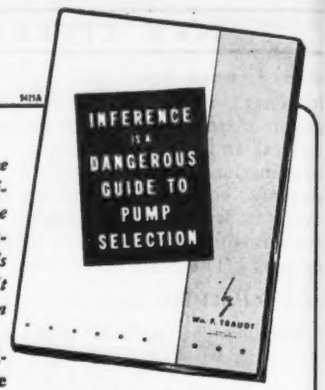
THE WATERTOWN MFG. CO., Dept. CP, Watertown, Conn.

When inquiring specify CP A4103 — see handy form pages 2-3

★

Tests Show Value of Grease Packing Conveyor Wheels On Assembly

An illustrated bulletin pictures installations of "Rapid-Wheel" portable conveyors and emphasizes the great advantages offered when conveyor wheels are grease packed on assembly. The tests which were undertaken to determine the value are described in detail and wheels used in the tests are pictured to show the relative conditions of this maker's wheels grease-packed and other standard which were not. Two wheels of each type — standard with no lubricant and new type recessed hub, special grease packed No. 11 — were placed in a testing machine. They were tested under a 64 lb. load for a total of 61 hours. The wheels were run continuously for 8 hour periods with intermittent waiting periods of 16 hours. Before the machine was started and before and after each operation, the wheels were brushed with salt solution. After 61 hours of operation one wheel of each type was cut open for examination. Results: The interior parts of the standard wheel were badly corroded, including ball bearings and raceways. The wheel hub was rusted and pitted to such an extent as to fail completely in its function as inner raceway. Exterior parts of the wheel had heavy deposits of rust, especially around the hub opening and projecting part of the hub. The new type recessed hub special grease packed No. 11 wheel still functioned perfectly after the test. Interior parts, including ball bearings, were unaffected by the salt solution. Exterior parts, especially around the hub openings and projecting part of the hub, were protected



If industrial Pumps are one of your responsibilities, ask now, for free copy of this authoritative, unbiased analysis of Industrial Pumps. It is a timely presentation of pump facts.

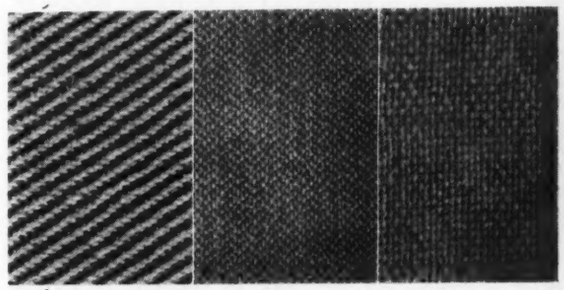
This is the first analysis, insofar as we know, to prevent the misapplication of Industrial Pumps. It is written by one who has a rather wide and diversified knowledge of many types of pumps. But the author holds no more of a brief for any one type than its adaptability warrants.

He endeavors to explain the limitations of various types of pumps such as piston, plunger, rotary and centrifugal. Thus he attempts to prevent, as much as possible, misapplication.

Based also on the long experience of Taber Pump Co., this modest contribution is offered to users of pumps in the processing industries. We will gladly send a copy of this Bulletin No. S-146, when it is requested on business stationery.

TABER PUMP CO. • Est. 1859 • 320 ELM ST., BUFFALO 3, N.Y.

When inquiring specify CP A4104 — see handy form pages 2-3



COTTON

Have you tried our cotton filter media . . . our conversion service?

Cotton as applied to filter media isn't just cotton. There are grades in this raw material just as there are grades in certain other raw materials. We use the most suitable cotton available for our cotton filter media.

We also maintain at both of our factories — Salt Lake City and Hamden, Conn. — an efficient and economical conversion service to make up complete filter covers. Tell us the make and size of filter. We have all the necessary data. We can probably save you money and time.

Send for our latest catalog.

FILTER MEDIA CORPORATION

Hamden 14, Conn.

Chicago **Salt Lake City**

3-FM-1

When inquiring specify CP A4105 — see handy form pages 2-3



Compare its design with that of any other coupling. No welding in its forged steel cover and sleeve. No flexible hub connections to fatigue. No leakage through its positive Waliflex Seal. No added stress on shaft or bearings while compensating for misalignment. By eliminating the chief causes of excessive wear and repair you insure longer trouble-free service with this WALDRON COUPLING.

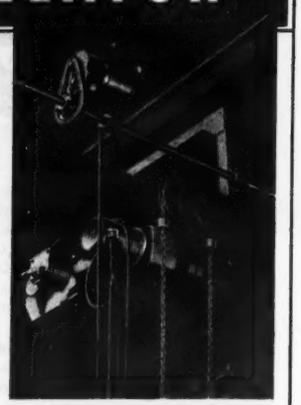
Catalog containing construction details, rating tables, etc., will be sent on request. No obligation.

COUPLING DIVISION

JOHN **WALDRON** CORP.
Main Office and Works
New Brunswick, New Jersey
COUPLINGS

When inquiring specify CP A4106 — see handy form pages 2-3

MOTOR TRAVEL for Hand Traveled Crane Bridges
THE *Northern* **"TRAVELATOR"**



Less than half a day required for application—no dismantling of crane—any good mechanic can apply the Northern "Travelator."

It provides pendant push button controlled electric power travel for hand traveled bridges within the range of 10 tons capacity.

The "Travelator" is an inexpensive, thoroughly effective durable device

WRITE FOR BULLETIN 5

Northern ENGINEERING WORKS
2685 Atwater Street, Detroit, Michigan
Offices in Principal Cities
Northern Crane & Hoist Works Limited, Windsor, Canada

When inquiring specify CP A4107 — see handy form pages 2-3

NEW LITERATURE

by the small amount of grease which seeped through the openings in the hub during the test.

The new type recessed hub No. 11 special wheel is 2 " in diameter plated to resist rust or corrosion, rolls on free-running, self-aligning ball bearings, with patented baffle design and is grease packed at the factory for permanent lubrication. The new type recessed hub No. 11 Special grease packed wheel is used on all Rapids-Standard Rapid-Wheel Gravity Conveyors to give longer life of trouble free service. They will stand up under atmospheric changes or humidity and foreign materials accidentally coming in contact with the conveyor in warehouses, bottling or cold storage plants.

RAPIDS-STANDARD CO., Dept. CP, Bond & Trowbridge, N.W., Grand Rapids 2, Mich.

When inquiring specify CP A4108 — see handy form pages 2-3

★

Coated "Fibreglas" Cloth for High Temperature, Oil Resistant, Non-Combustible Services

A new four page, illustrated two-color folder affords an interesting presentation of the properties and applications of coated "Fiberglas" cloth. A number of its wartime applications are pictured and briefly described, emphasizing the great serviceability and versatility of such material. Three swatches are attached to the folder. These provide samples of Neoprene coated Number 127 "Fiberglas" cloth; Neoprene & Aluminum Pigment on Number 116 "Fibreglas" cloth and Vinyl-coated Number 162 "Fiberglas" cloth. Synthetic rubbers, vinyl compounds, etc., are now being used for coating the "Fiberglass" cloth by a number of coaters and processors. Suggested uses include: curtains for transportation vehicles; screens, trunk and hand luggage coverings, tents and shelters, awnings, gaskets and packings, water storage tanks, protective clothing, reinforced steam and hot paint hose. Copies of this folder, "Need Any of these Properties in a Fabric" on request. OWENS-CORNING FIBREGLAS CORP., Dept. CP, Toledo 1, Ohio.

When inquiring specify CP A4109 — see handy form pages 2-3

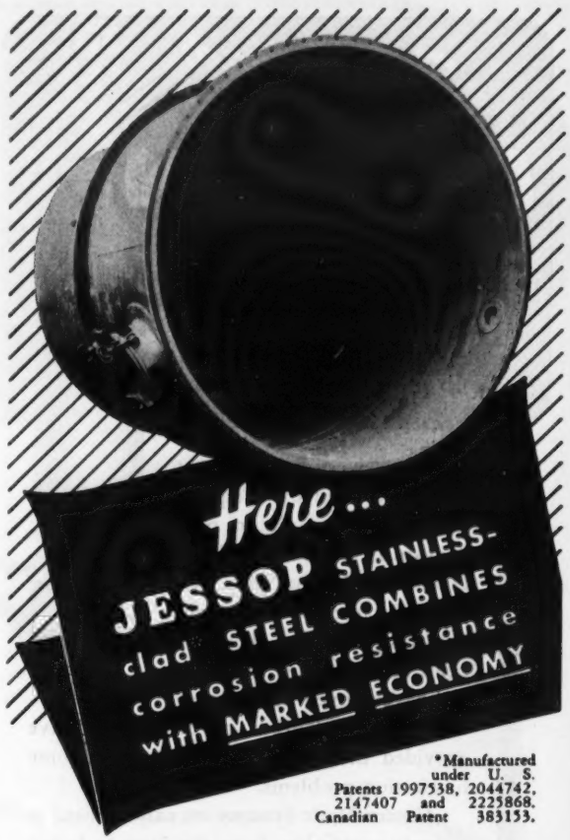
★

Metal Cleaning and Finishing Machinery

An attractive 48-page book containing over 80 photographic illustrations and detailed information on the design and application of Howard metal cleaning and finishing machinery has recently been issued. All features of the machines are fully, clearly described — including their engineering design and construction, adaptability to every phase of metal cleaning and finishing, ease of control, and automatic operating devices. Numerous distinctive improvements are also illustrated. Among the types of machines described are: Cabinet Type and Conveyor Type Metal Cleaners and Finishers, Monorail Washers; Rotary Washers; Small Parts Washers; Tumbling, Deburring and Burnishing Machines; Hot Air Dryers & Ventilators; and Solvent Cleaners. There is a separate section on machines of special design, custom-built by manufacturer to meet unusual requirements. An important feature of the book, too, is profusely illustrated details of construction, information which engineers will particularly appreciate. There is also an exhaustive treatment of the various processes involved in metal cleaning and finishing. This catalog is available without charge.

HOWARD ENGINEERING & MFG. CO., Dept. CP, 2286 Buck St., Cincinnati 14, Ohio.

When inquiring specify CP A4110 — see handy form pages 2-3



*Manufactured under U. S. Patents 1997538, 2044742, 2147407 and 2225868. Canadian Patent 383153.

Fabricated entirely from Jessop's 20% stainless-clad steel, this ten foot diameter tank is an example of equipment in which complete corrosion resistance is possible at a cost substantially less than that if construction were of solid stainless. This unit is part of a triple effect evaporator designed by the United States Pipe and Foundry Co., Burlington, N. J., and is fabricated by the Downington Iron Works, Inc., Downington, Pa., for the recovery of feed as a by-product from grain alcohol manufacture. The stainless surface on the interior prevents corrosion and the mild steel backing contributes to over-all strength. (Constructed to meet ASME Code requirements.)

Jessop Stainless-Clad Steel is made by a patented process whereby stainless steel of specified thickness is inseparably united with mild steel backing. 10% to 50% cladding is possible down to $\frac{3}{16}$" total gauge, and 5% to 50% on gauges down to $\frac{3}{8}$". Backing can vary in thickness from section to section, as strength may require, but cladding can be controlled to specified thickness throughout, and either increased or decreased to meet corrosive conditions encountered at given points.

Jessop Stainless-Clad Steel can help solve *your* corrosion problem. For more information on Jessop Stainless-Clad Steel and its advantages write for our technical bulletins.

JESSOP STEEL COMPANY
WASHINGTON, PA.

When inquiring specify CP A4111 — see handy form pages 2-3

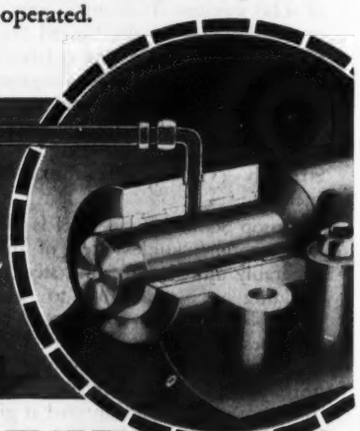
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CENTRO-MATIC Lubricating Systems



Each and every bearing must be safeguarded by adequate lubrication if maximum production is to be maintained. Lincoln Single Line CENTRO-MATIC Lubricating Systems give this protection—they help keep machines on the job—and have proved their dependability in hundreds of plants and have provided the answer to many troublesome lubrication problems.

Centro-Matic Systems are easy to install—a single supply line from the Lincoln Lubricant Pump to each bearing, mounted singly or in manifold. The pump can be time clock or push-button controlled, power-operated, or manually-operated.



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Gentlemen: I would like to have literature on Centro-Matic Lubricating Systems.

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Company_____

Address_____

City_____ State_____

B261C

When inquiring specify CP A4112 — see handy form pages 2-3

NEW LITERATURE

Influence of Ground-Water Level on Turbine Well Pump Performance

Four page bulletin contains reprint of article on "Influence of Ground-Water Level on Turbine Well Pump Performance." In non-technical the author explains loss in output caused by receding level of underground water and he illustrates the remedy for such a condition by means of a typical example. Details of a simple water-level measuring device are supplied.

WORTHINGTON PUMP & MACHINERY CORP., Dept. CP, Harrison, N. J.

When inquiring specify CP A4113 — see handy form pages 2-3

★

V-Belt Drives for Fractional HP Service

Fractional horsepower v-belt drives are the subject of an illustrated catalog — forty pages — for all types of machinery and household appliances. Features of the belts are listed and shown in detailed illustrations. They include special construction in which the outer section is especially built to accommodate bending without strain or distortion. The "neutral axis" is built with stronger, compact cord, Laytexed through special processes and vulcanized under tremendous tension removing stretch. The "neutral axis" extends the entire width of the belt in its proper zone without distortion, giving a completely balanced and true running design. Compression section gives cross wide rigidity eliminating buckling, creeping, etc. A highly developed non-dusting cover is used. Pulleys are also illustrated and described and the directions and tables provided make it easy to make selection of v-belt drive for any fractional horsepower service. Catalog 150.

THE DAYTON RUBBER MFG. CO., Dept. CP, Dayton 1, Ohio.

When inquiring specify CP A4114 — see handy form pages 2-3

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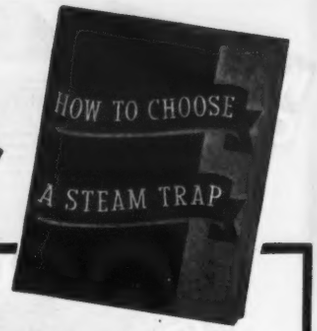
Electric Vibrating Feeds, Bin Level Gauges and Pulverizing Equipment

A variety of handling and processing equipment for many industries is covered in a thirty-two page illustrated catalog (Number 791). Photos, drawings and tabulated data give detailed information on electric vibrating feeders, standard and special vibrating feeders, constant weight feeders and related equipment. The basis of these electric vibrating feeders is balanced high frequency vibration under absolute control. Electricity is used to cause vibration and to control vibration. With these units rate can be changed at will while unit is running. No mechanical adjustments are required; nothing to wear out or lubricate. Power consumption is low. Made in a range of sizes from a few ounces to tons per hour. The speed of any material over the deck depends upon the length of stroke, i.e. the amplitude of vibration. This is usually controlled manually by means of a rheostat. Feeders may also be automatically controlled, by scale, automatic vibration controllers (also described in this catalog) or other control devices. Other equipment, in addition to that already referred to, includes the rotary bin check valve which prevents arching and flooding of finely divided material, bin level indicator, pulverizing units, elevating equipment, etc. Copies of this catalog will be sent to those desiring them.

JEFFREY MFG. CO., Dept. CP, Columbus 16, Ohio.

When inquiring specify CP A4115 — see handy form pages 2-3

Tells how, what, where, and why



Send for your FREE COPY

This 40-page book gives condensation rates for the different types of steam-using equipment . . . how to select the right size trap . . . explains trap capacity factors . . . how to determine lift of a trap . . . correct trapping of unit heaters . . . trap selection where large volumes of air occur . . . trapping pipe coils in still air and for blast heating . . . Jacketed kettles, autoclaves, submerged surfaces . . . hospital, kitchen and laundry applications . . . trapping mains, drips and special equipment . . . covers trapping practices and theory, installation, operation and maintenance. Included is a description of the Super-Silvertop Steam Trap and details of simplified piping. Send for your FREE copy.

THE V. D. ANDERSON COMPANY

1954 WEST 96th STREET • CLEVELAND 2, OHIO

When inquiring specify CP A4116 — see handy form pages 2-3

ON YOUR NEXT "Stainless Job"

FIGURE THE LOWER MATERIAL COST OF INGACLAD STAINLESS CLAD STEEL See how you save . . .



In designing new products . . . new plant equipment . . . or in modernizing your present plant, it will pay you to consider the generous use of Stainless Steel. Now you can use it freely because IngAclad Stainless-Clad Steel, at much lower cost, gives all the stainless service you will ever need . . . on the side that is used.

We produce both IngAclad and Ingersoll Solid Stainless Steel. Our engineers are, therefore, in a position to advise you without prejudice.

INGERSOLL

STEEL DIVISION • BORG-WARNER CORPORATION

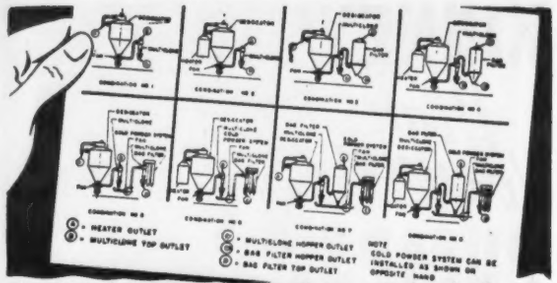
310 South Michigan Avenue • Chicago 4, Illinois

Plants: Chicago, Ill.; New Castle, Ind.; Kalamazoo, Mich.

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PRODUCTS OF BORG-WARNER

When inquiring specify CP A4117 — see handy form pages 2-3



This helpful TURBULAIRE Chart may be the key to

YOUR SPRAY DRYER PROBLEM

Send for your copy today!

The Turbulaire "Type N" Spray Dryer—an advanced type of dryer complete with collector for recovering the dried material, a heater and other optional equipment all combined into one compact unit—is an entirely new concept in spray drying equipment. It is ideal for research and pilot plant investigations into the "dryability" of various products, as well as for small scale production drying.

Whatever your requirement—spray drying waste or by-products in your plant—or the development of production techniques for new products—we urge you to investigate the unusual possibilities of the Turbulaire Type N.

Send for application chart which shows the unusual versatility of the TURBULAIRE Type N. With it we will also send an engineering booklet giving you many helpful facts about the Type N. Write today!



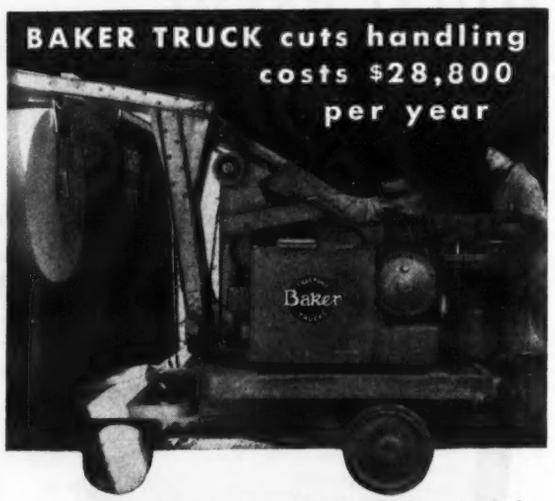
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When inquiring specify CP A4118 — see handy form pages 2-3

BAKER TRUCK cuts handling costs $28,800 per year



A floor covering manufacturer reduced the man-hours required for handling heavy bulky rolls of felt by 3/4, and made actual savings of $96.00 a day by installing a Baker Crane Truck with special boom. His truck makes a simple task of unloading these rolls from box cars, moving them to storage, and later to production . . . Our files contain many such cases where Baker Trucks meet today's needs for lower production costs to meet price ceilings.

Write for descriptive catalog and handbook.

BAKER INDUSTRIAL TRUCK DIVISION
of the Baker Raulang Company
2163 WEST 25th STREET • • CLEVELAND, OHIO

Baker INDUSTRIAL TRUCKS

When inquiring specify CP A4119 — see handy form pages 2-3

NEW LITERATURE

Hardwood Pallets, Skids and Lift Boxes

A new booklet deals with pallets in industry. This booket, well illustrated, brings valuable information to those now using pallets or planning to do so in the future. Taking the story of pallets in war as background material, the Booklet brings pallet information up to date for today's industry. "General lift" is the trade name of the General Box pallet. The pallets described are designed to fit individual specifications. Made of sturdy hardwood, these pallets, skids and lift boxes offer maximum service and a long life of materials handling to a wide range of users.

A copy of this booklet is available on request.

GENERAL BOX CO., Dept. CP, 500 No. Dearborn St., Chicago, Ill.

When inquiring specify CP A4120
— see handy request form pages 2-3

★

Portable Vacuum Cleaners

Portable vacuum cleaners suited to the needs of almost very type of industrial plant or commercial building, are described in a new bulletin just issued. Dimensions, capacity, power, performance, and weights are given for all models and sizes. Important characteristics of Exidust portable vacuum cleaners, such as the advanced design of the vacuum producer, the thorough dust separation, and the easy maneuverability, are explained in this bulletin. The 10-page bulletin is extensively illustrated with explanatory photographs showing the portable Exidust cleaning floors, walls, crevices, machine parts, pipes, and other structures. The bulletin will be sent on request.

ALLEN BILLMYRE CO., Dept. CP, 431 Fayette Ave., Mamaroneck, N. Y.

When inquiring specify CP A4121
— see handy request form pages 2-3

Stainless Data Sheets

★

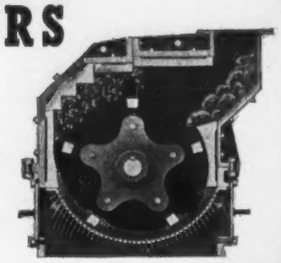
Allegheny Ludlum Steel Corporation announces the availability of new "Blue Sheets" of reference data on Allegheny stainless steel castings (8 pp.), stainless Types 347 and 321 (4 pp.), Type 416 (4 pp.), and Ludlum 609 shock resisting steel for tools and machine parts (4 pp.). These file-size sheets contain reference data certified by Allegheny Ludlum technical staff and prepared from carefully checked laboratory and service tests. Physical properties, corrosion and oxidation resistance, effects of elevated temperature, and heat treating procedures and results are given in condensed form for quick reference.

ALLEGHENY LUDLUM STEEL CORP., Dept. CP, Brackenbridge, Pa.

When inquiring specify CP A4122
— see handy request form pages 2-3

PULVERIZERS

Swing hammer type for reducing limestone, shale, soda ash and similar materials to 10 mesh or coarser Four standard sizes, all with manganese steel hammers and hardened breaker blocks that insure rapid crushing at low power cost. Send for catalog.



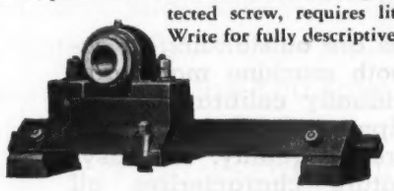
BELT IDLERS

For belts 14 to 48 inches wide. The pulleys are sturdy, rugged, built with straight sides to shed dust and rounded corners to prevent injury to the belt. They are evenly balanced and run true insuring long life. Furnished troughed or flat, in standard and many special designs.



TAKE-UPS

For moderate, intermediate and heavy duty service. The Style H heavy duty take-up illustrated herewith is available with solid journal, pillow block or anti-friction bearings,—features a protected screw, requires little clearance. Write for fully descriptive catalog.



THE C. O. BARTLETT & SNOW CO.

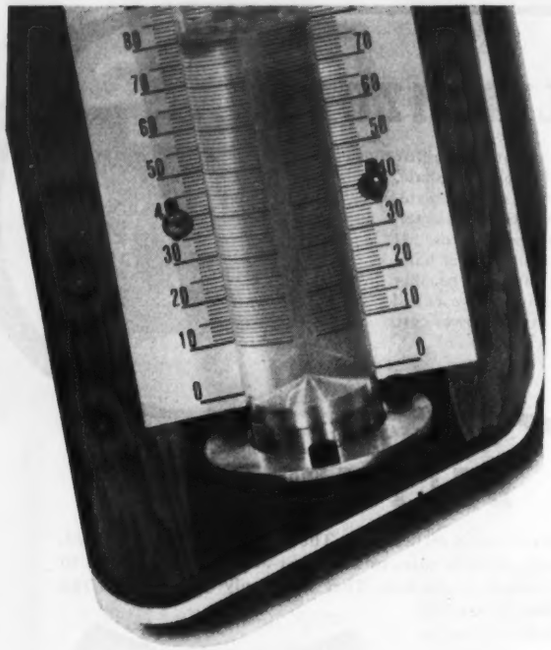
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CONVEYORS, CRUSHERS, FEEDERS, SCREENS

When inquiring specify CP A4123 — see handy form pages 2-3



DIALS • SCALES

INDICATORS . NAME PLATES

for Precision Measurements

With our unique Syl-O-Ette process we are making precision scales of various shapes and sizes — even up to 100" long.

These scales are outstanding in accuracy — both machine made and those individually calibrated. Scientific equipment and skilled personnel insure this quality. The easy-to-read feature characterizes all Maymer scales.

We make name plates of engraved lamacoid — distinctive in appearance and reasonable in cost.

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CORPORATION

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When inquiring specify CP A4124 — see handy form pages 2-3

NEW LITERATURE

Pressure Regulating Valves for Steam, Air, Gas

A new pressure regulating valve catalog has just been released covering line of direct operated and pilot operated spring loaded valves for steam, air and gas service with sizing information. Also described in the catalog is a new fabricated steel separator of advance design with facts on sizing both separator and trap for automatic drainage. STRONG, CARLISLE & HAMMOND CO., Dept. CP, 1392 West 3rd St., Cleveland, Ohio.

When inquiring specify CP A4125 — see handy form pages 2-3

★

Cutting Cast Iron-Successfully, Economically

Illustrated circular tells "how to cut cast iron" with the oxy-acetylene flame. For many years cast iron cutting was considered impossible but now with proper apparatus and technique the job can be done both successfully and economically. Included in the circular is discussion of proper types of equipment, preheating conditions, cutting positions, need of adequate protective clothing, proper oxygen and acetylene pressures, etc. Ask for circular — N-606.

NATIONAL CYLINDER GAS CO., Dept. CP, 205 W. Wacker Drive, Chicago, Ill.

When inquiring specify CP A4126 — see handy form pages 2-3

★

Heat Insulating Materials & Cements

A recently issued catalog facilitates the specification and selection of heat insulation for industrial and commercial use. In addition to complete information on over forty of this organization's heat insulation products, the catalog contains much helpful and practical data. For instance, there are heat loss tables, selection charts and data for determining insulation thickness, data on comparative efficiencies of the various types of insulation offered in the catalog, mechanical, thermal and performance characteristics, etc. The catalog covers magnesia, asbestos, sponge, diatomacious earth, calcined aggregate, mineral wool, corrugated asbestos types of insulation. Insulating, bonding and refractory cements are also included in the catalog. Copies of "Heat Insulation for Industry" are sent on request.

PHILIP CAREY MFG. CO., Dept. CP, Lockland, Cincinnati 15, Ohio.

When inquiring specify CP A4127 — see handy form pages 2-3

★

Solving Humidity Control Problems In Plants Making Shoes And Honing Equipment

A recently published bulletin "The Moisture Engineer," covers operating data on the Kathabar System of humidity control units which have been installed for providing comfort and for assuring desired processing atmospheres. This is the first issue of this publication and it carries stories concerning the solution of atmospheric problems through use of this equipment in the manufacture of shoes and honing equipment. The phychrometric approach to dehumidifying-humidifying problems for commercial applications explained. The center spread is devoted to a colored reproduction of the "Moisture Engineering Chart" which was developed specifically for the analyzation of humidity problems in comfort air conditioning and in industrial processing atmospheres. Copies are available on request.

SURFACE COMBUSTION CORP., Dept. CP, Toledo 1, Ohio.

When inquiring specify CP A4128 — see handy form pages 2-3

KINNEY *High Vacuum* PUMPS



Kinney Single Stage Vacuum Pump installation by General Engineering Co. for E. K. Cole, (varnish impregnating plant), Southend, England.

At home and abroad, Kinney High Vacuum Pumps produce and maintain, year after year, the extremely low absolute pressures so vital to modern process operations. High pumping speed, compact design and simple construction—without internal packings or piston rings—have made Kinney Pumps internationally famed for reliable, trouble-free operation.

Proved and dependable, Kinney Single Stage Vacuum Pumps maintain low absolute pressures to 10 microns, Kinney Compound Vacuum Pumps to 0.5 micron or better.

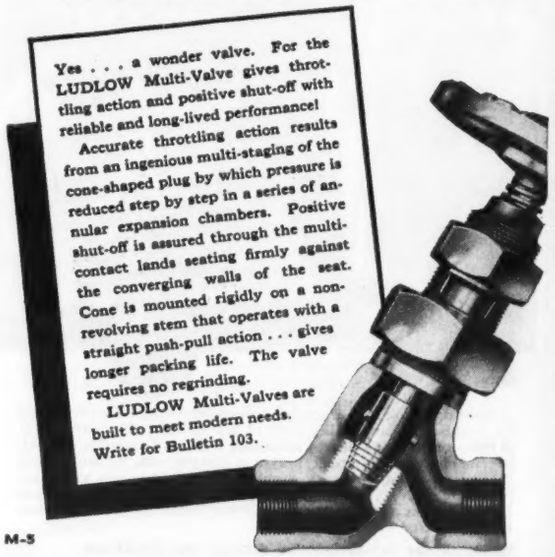
Write for information and catalog

KINNEY MANUFACTURING CO.
3573 Washington St., Boston 30, Mass.

We also manufacture vacuum valves, liquid pumps, clutches and bituminous distributors

When inquiring specify CP A4129 — see handy form pages 2-3

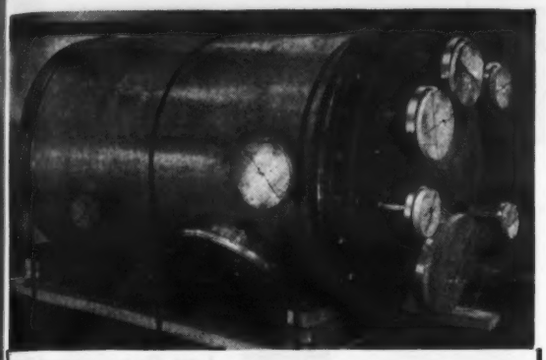
MULTI-VALVE - - WONDER VALVE!



M-5

The LUDLOW VALVE MFG·CO·INC·TROY·N·Y· SINCE 1866

When inquiring specify CP A4130 — see handy form pages 2-3



CHEMICAL TANK

Stainless Steel Chemical Tank made from Type 347, polished to a No. 4 finish inside. Tank fabricated with stainless steel laps backed up with standard steel flanges. 28 years of fabrication experience with all grades of alloys is available for special work.

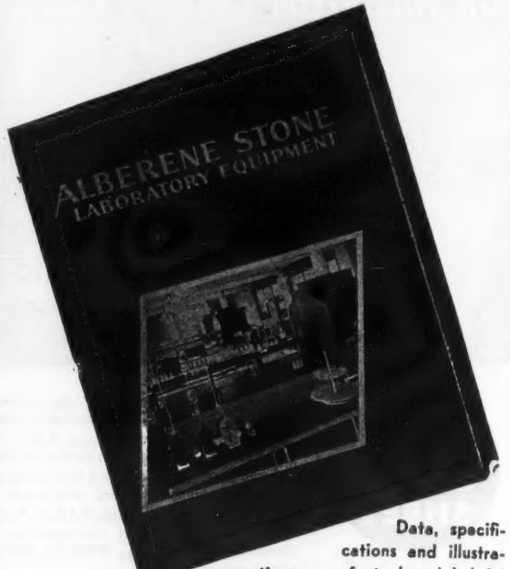
Write for Bulletin CP 30

ALLOY MANUFACTURING CO.

30th Street Pittsburgh, Pa.

When inquiring specify CP A4131 — see handy form pages 2-3

SEND FOR THIS CATALOG!



Data, specifications and illustrations . . . factual and helpful . . . about Alberene Stone, the material that outlasts the building.

ALBERENE STONE CORP. OF VIRGINIA
419 4th Ave., New York 16, N.Y.

When inquiring specify CP A4132 — see handy form pages 2-3

NEW LITERATURE

Portable Permanent Systems

Portable gravity conveyors quickly assembled from lightweight, sturdy, easily handled sections are shown in an illustrated bulletin. The features of this equipment make the conveyor systems thus available especially suitable for use by process plants, bottlers, warehouse operators, etc. The rigid construction of these conveyor units is possible through use of rolled steel channel iron frames, and "T" irons for cross members expertly welded to give prolonged efficient service. Roller wheels are ball bearings, 2" in diameter, rotating on cold rolled axles spaced on 3" centers. The straight sections have hooks on end, studs on the other. The bulletin illustrates the several easy steps involved in average assembly and also shows special curves, units mounted on trucks and a series of installation pictures in various types of plants. Copies of Bulletin 1045 on Speedways conveyors on request.

SPEEDWAYS CONVEYORS, INC., Dept. CP, 3080 Main St., Buffalo, N. Y.

When inquiring specify CP A4133 — see handy form pages 2-3

★

Batch Cement Mixers

Batch mixers for concrete are shown in bulletin setting forth features of this equipment offered in size range 12-50 cubic feet. All feature oversize shafts, heavy substantial all welded drums; heavy ball and roller bearings and supports. All have heavy cur gearing with steel pinion. The use of slub teeth on these gears insures a stronger tooth with smooth action and long wear. All sizes can be furnished with direct V-belt drive from the motor to driving pulley. An over drum safety grid and cement charging hopper are available.

THE KENT MACHINE CO., Dept. CP, Cuyahoga Falls, Ohio.

When inquiring specify CP A4134 — see handy form pages 2-3

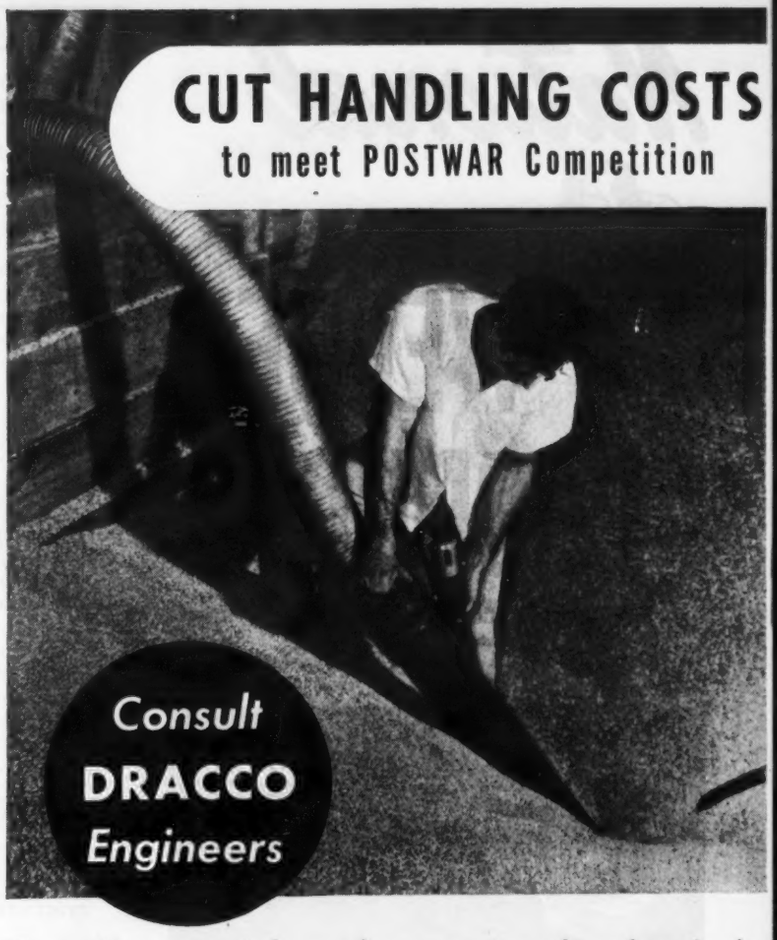
★

Easy Method for Selecting Sanitary Tubing

"Sanitary Fittings Simplified" is the title of a complete new looseleaf catalog and handbook. The catalog features and illustrates all the dimensions of sanitary fittings required to run sanitary lines, and a new method of determining sanitary tubing lengths. With the aid of "Sanitary Fttings Simplified" plant operators can determine sanitary fittings and tubing as easily. The catalog is available on request.

SPECIALTY BRASS CO., Dept. CP, Kenosha, Wis.

When inquiring specify CP A4135 — see handy form pages 2-3



Granular materials, such as grains, dry chemicals, and many other substances . . . can be handled more efficiently by DRACCO Pneumatic Conveyors than by any other means. You save labor, because ONE MAN and a DRACCO Pneumatic Conveyor can do the work of several men and do it far better. To meet postwar competition, the cost of every operation should be reduced to the very minimum and that applies to handling. Why not have DRACCO Engineers check your material handling methods? It may be your first step to a tremendous saving.

For Further Information Write

DRACCO CORPORATION

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

DUST CONTROL EQUIPMENT
PNEUMATIC CONVEYORS • METAL FABRICATION

When inquiring specify CP A4136 — see handy form pages 2-3

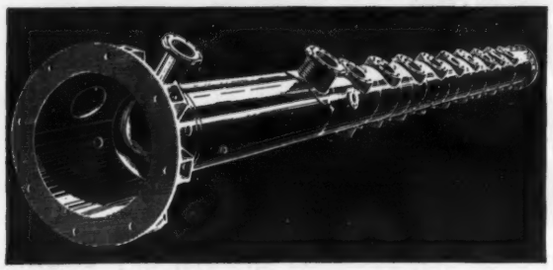
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API ASME U-68 U-69 Codes · Stress Relieving · X-ray

Pledged to Quality Since 1895

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When inquiring specify CP A4137 — see handy form pages 2-3

NEW LITERATURE

Conveyor For Handling Crates & Boxes

A new, portable, endless belt type conveyor for packages is the latest addition to an extensive line of conveying units. It is described in a new booklet. Called the Tote-All conveyor it is especially adapted to handling of crates and boxes. Conveyor has a 10 " wide rubber belt with various arrangements and sizes of cleats, and is available in 14 ' and 20 ' lengths. Power is furnished by a gasoline engine which is mounted underneath the center of the conveyor (adjustable to keep engine level in all conveyor positions), or conveyor may be furnished with an electric motor. Conveyor may also be purchased without power unit.

COALTOTER CONVEYOR CO., (Not Inc.) Dept. CP, 310 S. Michigan Ave., Chicago 4, Ill.

When inquiring specify CP A4138 — see handy form pages 2-3

★

Wetting Agent Detergent Washer

An eight page bulletin is devoted to a presentation of properties and applications of "Alconox" which is described as a powerful wetting agent detergent washer. It is intended for use in cleaning manufactured products, laboratory ware and equipment, glassware and for cleaning operations encountered in breweries, bottling plants and various process industries. An enumeration of its properties and features includes the statement that it contains no soap and is harmless to hands. It is supplied in three pound packages, fifty pound bags and in barrels. Copies of this bulletin on request.

STANDARD SCIENTIFIC SUPPLY CORP., Dept CP, 34 West 4th St., New York, N. Y.

When inquiring specify CP A4139 — see handy form pages 2-3

★

Fractional Horsepower Motors & Generators

A new two-color brochure describes precision fractional horse-power motors and generators. It shows in detail typical units in the "FB" frame, designed to allow both base and frame mounting. Permanent-Magnet A.C. and D.C. Generators, Split-Field D.C. Motors, Permanent-Magnet D.C. Motors, Series and Universal Motors, and Shunt-Wound D.C. Motors are pictured and described in detail. Facilities for special design are noted. Construction and characteristics of all types are given, and performance curves shown for the typical units selected. Standard dimensions and cut-away view are shown for engineers' interest and convenience.

ELECTRIC INDICATOR CO., Dept. CP, Stamford, Conn.

When inquiring specify CP A4140 — see handy form pages 2-3

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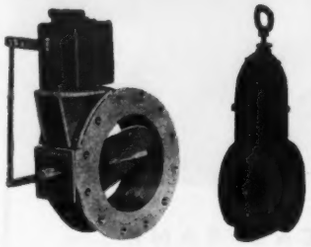
New Data On Catalytic Cracking

A new 60-page brochure, "Petroleum Refining Processes," R-9, containing the latest data on catalytic cracking, Polyform, lubricating oil, solvent refining and dewaxing, and petroleum chemical processes, has been just issued. Featuring 22 full-page flow charts of latest refinery processes, the book is a valuable aid to large and small refiners who must convert war facilities to peacetime manufacture. It is likewise of help to refiners who must build new equipment for the production of high octane motor gasolines. Illustrated with numerous photographs of various types of process plants designed and built by this company, the brochure also gives specification and installation data on Oil Heaters and Heat Exchange Equipment.

LUMMUS CO., Dept. CP, 420 Lexington Ave, New York 17, N. Y.

When inquiring specify CP A4141 — see handy form pages 2-3

These Quick-Acting Valves are Easy to Regulate and Shut Off · Give Full Flow on



Chemical Gases
Flue Gases
Exhaust Lines
Heat Exchangers
Hopper Controls
Low Pressure Air
Powdered Fuel
Paper Pulp
Sewage
Solvent Recovery
Vacuum Operations

Butterfly Valve with motor-operated control. Threaded or flanged, or wafer types; also hydraulic, solenoid, float or other automatic controls and lever, hand wheel or chain wheel manual controls; sizes 1" to 48" and special larger sizes.

Slide Valve with pull-handle control, threaded or flanged; also in lever, hand wheel, chain wheel and special controls; sizes 1" to 20". Also "Kwikleen" types for gases or materials containing solids that clog but can easily be cleaned out.

Built of any alloy or of rubber-covered metal.

For working pressures to 25 p.s.i. Minimum pressure drop through valve. For hard service at minimum first cost and maintenance; easy to install in any line or on any equipment.

ROCKWELL VALVES

SLIDE AND BUTTERFLY TYPES

W. S. ROCKWELL COMPANY

220 ELIOT STREET · FAIRFIELD, CONN.

When inquiring specify CP A4142 — see handy form pages 2-3

GET THE FACTS ON THIS ALLOY CASTING SERVICE



Write for FREE DATA SHEET

Condensed into one file-size reference sheet are complete data on the products and services of The Cooper Alloy Foundry Co. Included is a full listing of Cooper stainless steel, monel and nickel alloys... their analyses, physical properties, recommended applications, A.I.S.I., A.S.T.M. and other equivalent designations. Get the facts on Cooper... write for this data sheet today.

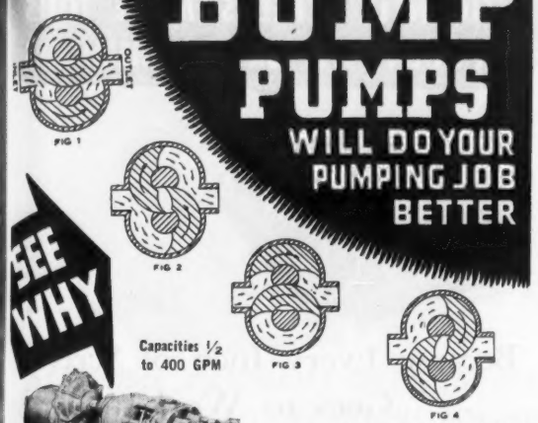
THE Cooper ALLOY FOUNDRY CO.

150 BLOY STREET • HILLSIDE, NEW JERSEY

When inquiring specify CP A4143 — see handy form pages 2-3

BUMP PUMPS WILL DO YOUR PUMPING JOB BETTER

SEE WHY



THE illustrated principle of operation shows why Bump Industrial Pumps have low maintenance cost. There are no grease cups, and no internal threads — only 2 moving parts, which make them easy to clean and easy to maintain. As one company that has used a large number of Bump Pumps for years states: "They do a better job at a lower total cost to us than any other pump now offered on the market." Bump Industrial Pumps are positive displacement at any speed or pressure . . . self-priming under high vacuums or against head pressures.

Send for new complete catalog



The BUMP PUMP CO.
LA CROSSE • WISCONSIN

When inquiring specify CP A4144 — see handy form pages 2-3



SYSTEMATIC STORAGE of raw materials provides a flexible inventory that prevents production delays, permits the purchase of materials in larger quantities, effecting considerable savings in purchase price and assuring better delivery from suppliers. To learn the answer to your storage problem

TAKE IT UP WITH
TOWMOTOR
THE ONE-MAN-GANG

Towmotor Corporation, Div. 7, 1226 East 152nd Street
CLEVELAND 10 OHIO

When inquiring specify CP A4145 — see handy form pages 2-3

NEW LITERATURE

"Rigid Steel" Prefabricated Steel Buildings

An 8-page bulletin describing "Rigidsteel" standard building construction has recently been issued by manfacturers of machinery and steel products. Engineering data and complete information on the advantages of Rigidsteel are fully covered in the bulletin. "Rigidsteel" construction is the most recent development in the field of prefabricated standard steel buildings. It is, essentially, rigid frame design as compared with truss design. A "Rigidsteel" building is a stiff-jointed structure made up of a system of beams, joined together to form a rigid frame and designed so that all field connections are bolted. No welding or riveting is required for erection. The structural steel frame used in the "Rigidsteel" building is constructed of hot-rolled shapes which conform to the standard specifications as set up by the American Society for Testing Materials. It is designed and fabricated in accordance with the standard practice of the American Institute of Steel Construction. In addition, the standard cover of a "Rigidsteel" building consists of especially fabricated galvanized steel sheets. The simplicity in design of the "Rigidsteel" frame requires the minimum possible parts — two columns and two rafters.

NATIONAL MACHINE & FOUNDRY CO., Dept. CP, 313 6th Ave., Pittsburgh, Pa.

When inquiring specify CP A4146 — see handy form pages 2-3

★

Open Steel Flooring

Open steel flooring featuring what is termed "tri-lock" structure is fully described in attractive twenty-four page catalog. Only two parts are used — bearing bars which carry the load and have curved slots punched above the neutral axis and cross bars pressed into these slots distribute the load. No rivets, bolts or welds are required. All joints are at right angles, giving a maximum area for the transmission of light and air. Grating is furnished with fastening devices best suited to the particular requirements. Standard and special fasteners are illustrated and described. Manufacture may be with a variety of metals other than steel; brass, bronze, alloy steel, aluminum. Separate sections in the catalog are devoted to rectangular open steel flooring, diagonal open steel flooring, super safety u-type, radial open flooring and safety steps. There is a load table for rectangular steel flooring. Copies of catalog on request.

DRAVO CORP., (Machinery Div.), Dept. CP, 320 Penn Ave., Pittsburgh, Pa.

When inquiring specify CP A4147 — see handy form pages 2-3



Beware this Dust-Hog that Feasts at your Expense

Like bad air, poor light and obsolete tools . . . Dust-Hog keeps a man from doing all he might. Dust . . . in his eyes . . . dimming his light . . . begriming his work . . . slows him down, invites mistakes, spoils morale.

Consider the money dust control saves — improving efficiency, reducing maintenance, reclaiming dust by-products. Pangborn's free booklet, "Control of Industrial Dust", brings you up to date on how to clear out costly "dust pockets".

Write Pangborn — *world's largest manufacturer of dust control and blast cleaning equipment.*

Pangborn

PANGBORN CORPORATION, HAGERSTOWN, MARYLAND

When inquiring specify CP A4148 — see handy form pages 2-3

PATTERSON-KELLEY
Heat Exchangers
AND
Process Equipment

YOUR
Buying Guide

DO YOU NEED

Autoclaves Condensers Coolers
Heaters Heat Exchangers Kettles
Mixers Stills

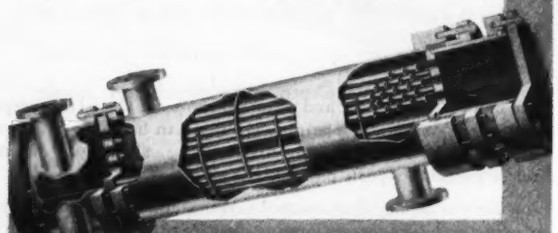
MADE OF

Aluminum Bronze Carbon Steel
Copper Copper-Silicon Nickel-Clad
Stainless-Clad Stainless Steel

These sixteen listings cover a wide variety of processing and heat-exchanger units and will give you an idea of what Patterson-Kelley can make for you.

If you would like us to design the units you require, our engineers will be glad to do so. They are familiar with most processes and requirements in the way of heat transfer equipment. They know thoroughly the principles of heat transfer. Or, if you prefer to design your own equipment, we shall be glad to quote on the manufacture.

A phone call or letter to our nearest office or representative will bring prompt service.



THE PATTERSON-KELLEY Co. Inc.
120 Warren St., East Stroudsburg, Pennsylvania
Boston 16 Chicago 4 Philadelphia 3 New York 17
36-A Huntington Ave. • Railway Exchange Bldg. • 1700 Walnut St. • 101 Park Ave.
Representatives in All Principal Cities

When inquiring specify CP A4149 — see handy form pages 2-3

NEW LITERATURE

270 Page Book On "Ball and Roller Bearing Engineering"

A 270—page technical book entitled "Ball and Roller Bearing Engineering" has been published by SKF here to serve as a fundamental text on all phases of bearing applications to industry. The book, a bound volume containing some 900 drawings and tables, begins with a technical description of common bearing types and continues through nine chapters of fundamental engineering studies. Both radial and thrust bearings are discussed comprehensively in Chapter I together with data on dimensional proportions, running accuracy and tolerances of each type. "Forces and Motions in Bearings," the second chapter, is devoted to theory and calculations on such subjects as the nature of rolling resistance, friction torque, friction coefficients, stresses and deformations, load distribution, motion and inertia. Other chapters deal with studies in the carrying capacity of ball and roller bearings, bearing selection, design of bearing applications, mounting and dismounting, lubrication and maintenance and bearing failures. The final chapter is made up of tables, conversion values and a description of symbols and abbreviations. (Dr. Arvid Palmgren, author of "Ball and Roller Bearing Engineering," is considered a world-known authority in his field.) Copies of the book have been sent to the heads of leading corporations, technical schools and colleges and libraries in principal U.S. cities. Other editions will be sold at cost by the Company for students and others interested in bearing studies.

SKF INDUSTRIES, Front & Erie Sts., Philadelhpia, Pa.

When inquiring specify CP A4150 — see handy form pages 2-3

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Self-contained X-Ray Units for Inspection Service In Chemical, Plastics & Other Fields

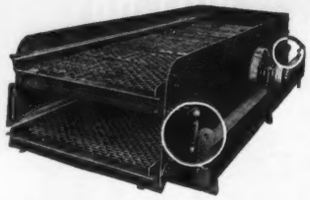
A twelve-page booklet describing "Norelco Inndustrial X-Ray Equipment" has recently been issued. The "Searchray" units shown in detail and fully explained do not require the expense of lead-lined rooms as they are self-contained. They thus provide the benefits of x-ray inspection at reasonable cost. Operation of these units may be learned in a relatively short time. X-ray inspection as provided by this equipment for automotive, aviation, battery, ceramics, chemical, die casting, electrical, food, foundry, plastics, rubber, steel and textile industries. One user has reported that 6000 castings a day are being inspected with a Model 150 unit by personnel with no previous x-ray experience. Some other firms have installed the conveyor type of "Searchray" units to provide continuous inspection in the production line. The versatility of the Model 150 is such that plastic structures 1/16 in. thick may be inspected as well as denser materials such as magnesium, aluminum, brass, zinc, steel and cast iron. The Models 150 and 80 have built-in fluorscopic screens permitting rapid visual inspection of many materials. This feature enables the operator to position the specimen visually before making a radiograph — saving time and film. Model 90 is a mobile unit meeting needs where x-ray inspection is desired on objects not easily moved or where long focal lengths are necessary. Latter pages of the booklet features a comprehensive application chart indicating where each of the several units may be used over a wide range of materials. Brief data together with illustrations are presented on the back cover. Copies of this booklet are available on request.

NORTH AMERICAN PHILLIPS CO., Dept. CP, 100 E. 42nd St., New York, N. Y.

When inquiring specify CP A4151 — see handy form pages 2-3

SECO'S *PC** PAYS OFF!

EFFICIENTLY SCREENS MORE TONS PER HOUR—WET OR DRY CHEMICALS



PC*-Positive Control of the Gyrating Action

Because Every Inch of Screen Goes to Work

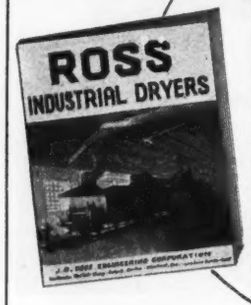
Seco's PC sets up a surer, sharper whip over every inch of screen, thus driving materials more quickly and accurately through the meshes and Seco's patented Auxiliary Vibrator enables efficient screening of damp, sticky materials. Seco screens are in use everywhere. Over 150 models available.

Send for Free Catalog Today! Dept. E

SECO SCREEN EQUIPMENT CO., INC.
9 Lafayette Avenue, Buffalo 13, N. Y.

When inquiring specify CP A4152 — see handy form pages 2-3

Take these 2 steps to BETTER PROCESSING



1 — Get this new book that explains how modern drying methods increase output and improve quality of products of major industries.

2 Get reliable recommendations of a Ross engineer for improving your processing with equipment designed to make its operation profitable to you.

Ross Bulletin No. 131 describes most successful drying method used in each of the major manufacturing industries. Write for your copy. Address our nearest office.

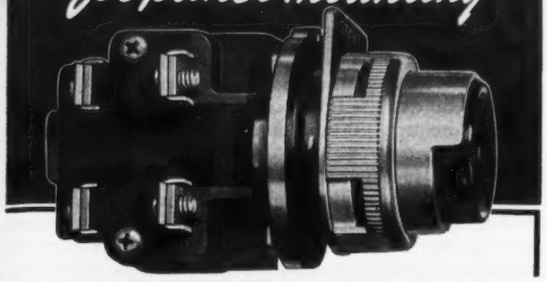
Ross Dryers are individually designed for the particular requirements. The Ross nameplate signifies a "custom made" dryer.

ROSS SYSTEMS

J. O. ROSS ENGINEERING CORPORATION
DESIGNERS AND BUILDERS OF AIR PROCESSING SYSTEMS
350 MADISON AVE., NEW YORK 17, N. Y.
Chicago-6, Ill. • Boston-9, Mass. • Detroit-3, Mich. • Los Angeles-14, Cal.
ROSS ENGINEERING OF CANADA, LIMITED MONTREAL-18, P. Q.
CARRIER ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND

When inquiring specify CP A4153 — see handy form pages 2-3

NEW LINE OF **OIL-TIGHT PUSHBUTTONS** *for panel mounting*



ACCESSIBLE TERMINALS! MORE COMPACT! MOUNTING IN ANY POSITION! MINIMUM STOCK FOR ANY COMBINATION! SEPARATE BLOCKS AND OPERATORS! INTERCHANGEABLE!

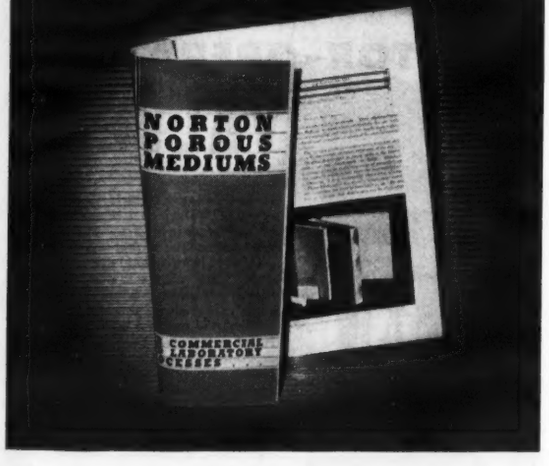
Write for Bulletin No. 202. Address Industrial Controller Division, 4041 North Richards Street, Milwaukee 12, Wisconsin.

SQUARE D COMPANY

DETROIT • MILWAUKEE • LOS ANGELES

When inquiring specify CP A4154 — see handy form pages 2-3

If you are using Porous Mediums . .



If you are using Porous Mediums for commercial or laboratory processes, you may wish to obtain a copy of this helpful and informative booklet on the specifications and applications of Norton Porous Mediums for filtration, aeration and gas diffusion. For data on these uniformly porous, acid-proof gas diffusing or filter mediums of great strength and accurately controlled physical structure write for Catalog No. 140 to:

NORTON COMPANY — Worcester 6, Mass.

When inquiring specify CP A4155 — see handy form pages 2-3

NEW LITERATURE

Heaters for Preheating Fuel Oil

A new bulletin (Number 35) describes a complete line of fuel oil heaters and is arranged to provide an extremely convenient reference for heating engineers and those concerned with combustion problems. Included is a handy viscosity-temperature chart which shows at a glance the temperature required to reduce oil to desired viscosity. The bulletin illustrates and describes, with compete specifications and capacities, the manufacturer's heaters which have been developed to satisfy conditions commonly encountered. The sizes listed cover the complete range of capacities ordinarily required for industrial power stations. Fuel heaters of all types are described, including a straight tube, fixed tube sheet construction which allows easy mechanical cleaning without breaking any line connection; also an economical straight tube design which incorporates a flexible expansion member to compensate for differential expansion or contraction between shell and tubes. For installations where the fouling characteristics of the oil are low, this maker offers heaters of standard, compact U- tube removable tube bundle construction, allowing automatic expansion and contraction of individual tubes; a small oil heater of U-Bend type is included in the line for maximum heating capacity in minimum space. A coil pipe heater for heating light and medium grades of oil which are relatively free of sediment. Copies on request.

WHITLOCK MFG. CO., Dept. CP, Hartford 1, Conn.

When inquiring specify CP A4156 — see handy form pages 2-3

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Forging Term Glossary

The forging industry, like most others, has its own language — its distinctive terminology. Some of the words are centuries old; others have come into use within relatively recent years. To aid users and buyers of forgings toward a better knowledge of forging practice, a comprehensive list of forging terms with their correct definitions has been published in a 20-page illustrated booklet entitled, "Glossary of Forging Terms." In this booklet words and terms are defined as used in forging practice, and it is recognized that other definitions are employed for some of the words in other fields for describing identical processes or operations. A copy of this Glossary of Forging Terms may be obtained by forging users on request.

KROPP FORGE CO., Dept. CP, 5301 W. Roosevelt Rd., Chicago 50, Ill.

When inquiring specify CP A4157 — see handy form pages 2-3

R-C *dual-ability*

means constant gas pressure and volume . . . . . .

• When your operations call for gas supply at constant pressure or volume, it's imperative that your boosters or pumps deliver it. Failure may mean costly shut-downs or loss of product quality —vitally affecting your profit.

You'll get the reliable service you need with Roots-Connersville Rotary Positive units. The twin impellers deliver a predetermined volume for every revolution—at the desired pressure. This *dual-ability* is built into every R-C booster as the result of almost a century of designing and building air, gas and liquid handling machines. It's one reason for the outstanding performance of R-C equipment in almost every industry.

ROTARY POSITIVE

The rotary positive displacement principle is the simplest and most effective method for most air, gas or liquid handling. Almost a century of development is built into every Roots-Connersville unit.

CENTRIFUGAL

Where centrifugal characteristics are of advantage, R-C single or multi-stage units of this type will serve you with fine performance resulting from excellent modern design.

If gas pressures and volumes have a bearing on your profits, we suggest you send for our Bulletins 31-B-15 and 32-33B-11 . . . or consult our engineers without obligation.

ROOTS-CONNERSVILLE BLOWER CORP.
One of the Dresser Industries
603 Richland Avenue, Connersville, Indiana



High pressure R-C gas pump, with regulator and by-pass; capacity 200 cfm.

Roots CONNERSVILLE SINCE 1854

BOOSTERS AND GAS PUMPS

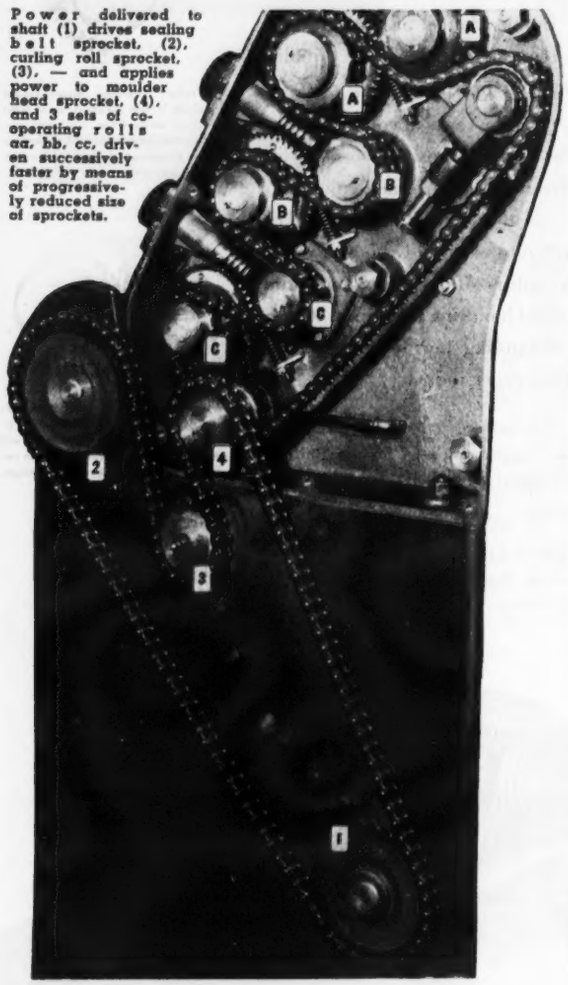
ROTARY POSITIVE AND CENTRIFUGAL BLOWERS • EXHAUSTERS • BOOSTERS
LIQUID AND VACUUM PUMPS • METERS • INERT GAS GENERATORS

When inquiring specify CP A4158 — see handy form pages 2-3

OPERATING SIX ROLLS WITH ONE DRIVE

The driving of multiple rolls illustrates DIAMOND Roller Chain adaptability. Because the sheet becomes thinner as it passes through three sets of rolls, set two must turn at a higher speed than one, and set three faster than two. The solution is simple — sprockets of successively smaller number of teeth are used. Since there is no slip or creep with DIAMOND, extreme accuracy is assured.

As the Chief Engineer writes, "These chain drives are subjected to very severe, continuous duty. *We know of no other drive that would give such dependable service under these rigorous conditions.*"



Power delivered to shaft (1) drives sealing belt sprocket. (2), curling roll sprocket. (3), — and applies power to moulder head sprocket. (4). and 3 sets of co-operating rolls aa, bb, cc, driven successively faster by means of progressively reduced size of sprockets.

Cooperating with machinery engineers for a half century has given us a vast store of data and experience. We are ready to make suggestions and mail our helpful chain drive Catalog 617. DIAMOND CHAIN & MFG. CO., Dept. 411, 402 Kentucky Avenue, Indianapolis 7, Indiana. Offices and Distributors in All Principal Cities.

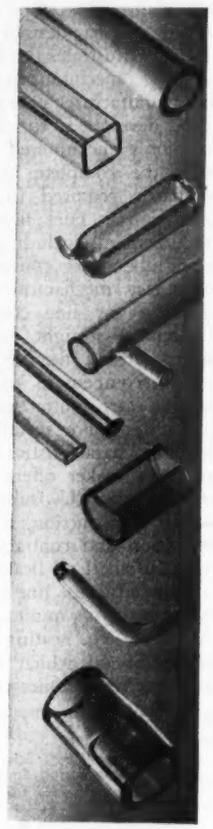
DIAMOND  **ROLLER CHAINS**

When inquiring specify CP A4159 — see handy form pages 2-3

Equipment for Production

Precision-Bore Glass Tubing in Tolerances to .0002 of an Inch

Wide variety available through "Glo-tech" process



Precision-bore tubing

Uses — The "Glo-tech" process described here makes possible the forming of corrosion-resistant borosilicate glass to precision internal dimensions meeting the need for glassware where precise internal dimensions are of paramount importance.

Features — Exceptional accuracy, bore sizes being controlled to within plus or minus .0002″ or less. Precision bore tubing made of borosilicate glass frequently is the answer to problems of corrosion and dimensional stability. Visibility is provided without sacrificing strength.

Description — Since the "Glo-tech" process was originally undertaken it has been improved year by year and the range of sizes producible has been expanded until now precision-bore round tubes can be made as large as 6″ inside diameter and as small as .0085″ inside diameter. In most diameters the length may be up to 100″. Tolerances can be held as close as .0002″. Almost any shape including square, hexagonal, oval, conical, concave, curved and fluted is available at moderate cost. Precision bore square tubes as large as 40 mm. x 40 mm. have been produced on a production basis. Range of applications include high accuracy manometers, barometers, viscometers, polarimeter tubes, moulds, Ramon tubes, McLeod Gauges, bearings, Rotameters, flow restriction nozzles and other glass instruments. For most applications Pyrex or Kimble NC is preferred. However, such glasses as Kovar and copper sealing glasses, can be resized successfully by the "Glo-tech" process. Literature is available concerning precision bore glass tubing and absorption cells.

FISCHER & PORTER CO., Dept. CP, Hatboro, Penna.

When inquiring specify CP A4160 — see handy form pages 2-3

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Nickel Plating Process Makes Steel Pipe Corrosion Resistant

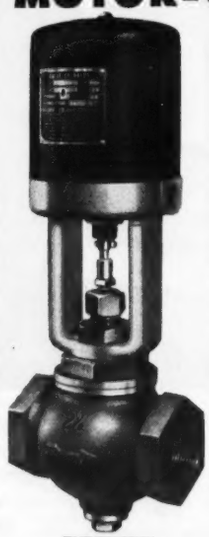
Inside electro-plated with nickel or other metals; low cost; extends use of corrosion-proof lines

Problem — Availability of pipe and tubing electroplated on the inside providing the corrosion and contamination resistance of nickel or other metals. Industry requiring pipe for general use, have felt the need for a permanent coating. Suitable materials for handling products required to be free of corrosion and contamination have been alloy pipe and pipeline accessories. Cost of the installation of this class of material has limited its use. Organic coatings have been developed. Here resistance to abrasion, high temperature, high pressure have been considerations. The development described here is the outgrowth of government requirements for an amount of low carbon seamless pipe in sizes up to 18″ OD to be protected internally with nickel. The specifications called for uniform deposit and the characteristics of the applied metal were such, that it could readily be reworked, welded, and fabricated without effecting the deposited metal. The problems involved necessitated accurate control of all elements of electrodeposition, viz., chemical composition, distribution of current characteristics, processes in treating prior to plating, etc.

Solution — The process (patents pending) electrolytically deposits nickel or some other metals on the inside of pipe or tubing from 2 — 18 inch OD in random lengths, approximately 20 feet. Plating machines, especially constructed anodes and many other platings techniques were developed, resulting in superior nickel deposits. Depressions in the steel pipe are more heavily coated than the high spots thus having an evening tendency and resulting in smoother deposits. In plating generally, the highpoints, or points of close proximity to the anode receive the most deposits while in this new technique, the reverse occurs. This process makes it possible to produce also a more ductile, and pore free nickel surface, completely adherent to the metal base, with thicknesses of from .005″ to .100″.

BARBER-COLMAN

MOTOR-OPERATED VALVES



TYPE FYBA
SEMI-BALANCED VALVE

Barber-Colman electric motor-operated Valves offer a number of advantages for all types of process and other control systems associated with industrial equipment. They will provide reliable shut-off for gases and liquids because of positive power-driven seating, and can also provide accurate motor-driven positioning for proportioning service. Current is consumed only when the valve is changing position. Motors are available for either low-voltage or high-voltage lines. These valves are made in a wide range of sizes and types, for accurate, dependable service.

Write for Bulletin
"CONTROLS for INDUSTRY"

Controls

BARBER-COLMAN COMPANY
1201 ROCK ST. • ROCKFORD, ILL.

When inquiring specify CP A4161 — see handy form pages 2-3

In addition to the adherence between the nickel and steel is such that the bond is not ruptured during heating, bending or even under the tremendous stress and change undergone during a reduction. For example, pipe drawn from a standard wall thickness of 4" iron pipe size (I.P.S.) with a coating of nickel of about .028", was reduced by a ratio of 4 to 1, resulting in an Iron Pipe 3½" OD with a thickness of .060" of steel and a nickel thickness of about .007". The reduction of the nickel and steel was so nearly equal that it differed only by fractions of a percentage. The resulting properties of this electro-clad pipe enables it to be welded and fabricated as simply as low carbon pipe. Welding and fabrication techniques have been fully developed, therefore the fabrication and erection of piping systems completely lined with corrosion resistant material and meeting requirements for pressure welding is available. It is possible to maintain 100% continuous corrosion resistant internal surface by using welding electrodes of 25/20 chrome., nickel or Monel. The Brinell hardness of weld metal is between 150 and 185. The weld metal and the nickel deposit from a continuous corrosion resistant internal surface. The electro-clad pipe has withstood the extreme temperatures of an automatic welding operation, consisting of three passes under sand, and no peeling, cracking, blistering occurred. Also, pipe and tubing has been upset for producing a Van Stone joint without effecting the nickel on the inside surfaces. This, of course, enables the fabricator to produce flange joints gasketed and obtain a complete protection against corrosion. Fittings and pipeline accessories can be similarly processed.

Results — Makes possible substantial savings in installations. Seamless pipe can be used in large sizes and permitting great range of temperature and pressure. Extends the use of corrosion resistant lines to a great number of processes. Its wide use is indicated in the production or handling of: petroleum, chemicals, foods, textiles, coke and gas, glue, gelatin, paints, sugar, paper, pulp, dye stuffs, glass, ceramics, etc. It finds use in exchanger shells, boiler tubes, tanks and vessels, containers, cylinders. It offefs many advantages in water works applications. Complete details on Bart "Lectro-Clad" Pipe on request.

BART MFG. CO., INC., Dept. CP, 227 Main St., Belleville 9, N. J.

When inquiring specify CP A4162 — see handy form pages 2-3

*

Dual-Spiral Expansion Reamer

Runout held to minimum; accuracy to close tolerances

Uses — This expansion reamer features re-design, the principle change being a solid one piece body all the way from the driving end to the lower lock nut.

Description — The one piece construction of this Lempco Dual-Spiral Expansion Reamer considerably reduces the



Reamer features one-piece construction

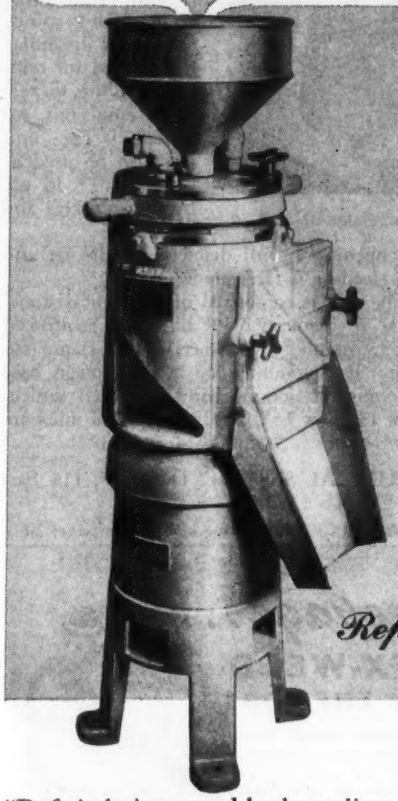
number of component parts. In addition because of its rigidity, the cutting blades spiral even more concentrically than previously, and runout is held to a minimum, insuring accuracy to extremely close tolerances.

LEMPCO PRODUCTS CO., Dept. CP, Bedford, Ohio.

When inquiring specify CP A4163 — see handy form pages 2-3

ONE MOVING PART . . . SIMPLE IN DESIGN . . . SANITARY IN CONSTRUCTION

THE DOOR TO EFFICIENCY



SANITARY
HOMOGENIZING
EMULSIFYING
DISPERSING
GRINDING

Increased Production at Lower Costs

Definite Product Improvements are Reported by PREMIER COLLOID MILL *users*

"Definitely improved both quality and life of our product" . . . "Increased production 15% without added labor" . . . "Greater capacity per HP consumption" . . . "Test samples superior" . . . "We no longer have packing-gland trouble or product contamination" . . . "No internal corrugations to cause unsanitary conditions". These actual quotations are typical of performance reports from users of Premier Colloid Mills.

Whether the work to be done is emulsifying, dispersing or disintegrating . . . whether the material to be processed is liquid, paste or solid, every Premier installation proves itself by giving consistently successful results. Finer particle size is an important factor in finer products. Moreover, compulsory treatment of every particle assures uniform standards of quality. A partial list of fields which benefited from these results:—

Adhesives, sealing compounds; asphalt emulsions; ceramic colors; coating and waterproofing emulsions; cosmetics; foods and beverages; oil emulsions; inks; leather finishes; latex (synthetic and natural); lacquer emulsions; lubricating oils, greases; pigment dispersions; organic chemical dispersions; paints, lacquers, varnishes; paper coatings, fillers, waterproofing; pharmaceuticals; plastics, resins; polishes, waxes; rubber compounds; textile finishes. (Special laboratory models are available for research work.)

Where a new process is involved and performance data desired, a test run may be arranged. Premier Mill Corporation, Factory and Laboratory, Geneva, N. Y.; General Sales Offices, 110 East 42nd Street, New York 17, N. Y.

Descriptive Literature on Request

THE PREMIER MILL

Better products more profitably processed

When inquiring specify CP A4164 . . . see information request blank, pgs. 2-3

3 BIG FEATURES of the Johnson Electrap

. . . make it today's highest development in a trap for pumping or lifting service, or draining vacuum lines.



1. ABSOLUTE DEPENDABILITY

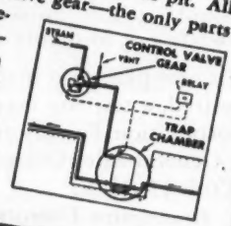
The Johnson Electrap utilizes a new electrical method of operation, which eliminates all floats and stuffing boxes—all moving parts from trap chamber. Its simple control consists of two metal electrodes which signal a solenoid valve, by means of an electric relay, when lifting pressure is to be admitted to trap chamber. Operation is as dependable as the flow of electricity.

2. OUTSTANDING PERFORMANCE

This electrical operation of the Electrap brings greater capacity, better all around performance. In scores of plants, the Electrap has replaced expensive pumps or cumbersome tilting traps. For draining vacuum lines it is equally outstanding—is actually operating under vacuum as complete as 27" of mercury.

3. REMOTE CONTROL

Here at last is the answer for those many installations where trap chamber must be set in some inaccessible corner or pit. All the controlling valve gear—the only parts which might require servicing—are gathered in one compact assembly. This can be mounted in any convenient position as shown.



Write for catalog showing the many applications of the Johnson Electrap

The Johnson Corporation

820 WOOD STREET THREE RIVERS, MICHIGAN

When inquiring specify CP A4165 — see handy form pages 2-3

PRODUCTION

Hand Operated Tumble Jar

Unit can also be used as a ball mill



Laboratory tumble jar

Uses — Applicable to laboratory tests in connection with foods, chemicals and other materials. Equally efficient for tumbling solids, powder or dissimilar liquids and for mixing, blending, dispersions, emulsions, solutions. The unit can also be used as a ball mill. In use by food packers and canners.

Features — The opening is full diameter of the jar and filling, emptying, cleaning is facilitated.

Description — The unit is comprised of a chemical stoneware cylindrical jar, 6" diameter by 8" high with reinforced rim, rubber gasket, ceramic cover, metal cover clamp for leakproof closure. It is mounted on a sheet metal base with crank to permit rotation by hand. Overall dimensions are 13½" x 13½" x 15" high. Motorized units are also available.

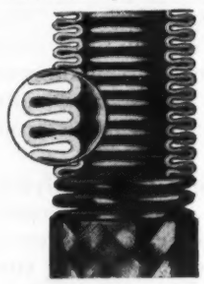
ANDREW TECHNICAL SERVICE, Dept. CP, 111 East Delaware Place, Chicago 11, Ill.

When inquiring specify CP A4166 — see handy form pages 2-3

No Seepage . . . WITH REX-WELD ON THE JOB!



REX-WELD Flexible Metal Hose is absolutely tight for conveying steam, gases, oils and various types of searching fluids. It eliminates dangerous, wasteful leakage—types are available which effectively resist the corrosive action of the material being conducted. To do a better job, more economically—use Rex-Weld!



- Available in bronze and steel, annular or helical corrugations.
- Unbraided or braided—depending on working conditions.
- Sizes from 3/16" to 4" I.D. (incl.)
- Successfully withstands temperatures to 1000° F. and burst pressures to 11,000 p.s.i.—depending on size.
- REX-TITE mechanical couplings are easy to install—reattachable.

Find out how durable, versatile REX-WELD can solve your flexible metal hose problems. Write today for Booklet E-144.

Flexible Metal Hose for Every Industrial Use

CHICAGO METAL HOSE CORPORATION
MAYWOOD, ILLINOIS

Plants: Maywood and Elgin, Ill.

When inquiring specify CP A4167 — see handy form pages 2-3



L-B Screen separating soy bean oil from meal.

RECOVERY of waste products for conversion into salable goods . . . efficient separation of liquids and solids . . . cleaner drain pipes and reduced pollution . . . higher profits through lower costs. L-B Liquid Vibrating Screens give all these! Chemical and food products are dewatered, greases and oils recovered for use. Find out how the modern L-B method can be profitably applied to your screening job—WRITE today for new Book No. 1977!



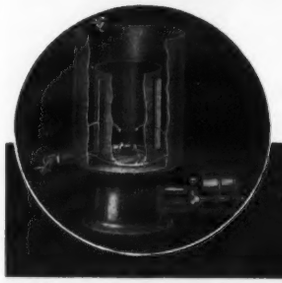
LINK-BELT COMPANY
2045 W. Hunting Park Ave., Philadelphia, 40
Offices in principal cities

5839

LINK-BELT Vibrating SCREENS

When inquiring specify CP A4168 — see handy form pages 2-3

COMPLETELY DISPERSE
GRIND • DISSOLVE • EMULSIFY
IN ONE OPERATION



Faster More Uniformly at Lower Cost with

ABBÉ-LENART MIXER

Here's the processing unit that thoroughly breaks up and uniformly disperses solids in liquids — such materials as paints and lacquers, colors, dyes, plastics, drugs and cosmetics, gums and resins, glues, sizes, chemicals of all kinds, under any conditions of vacuum or pressure and temperature. It cuts processing time as much as up to 75 per cent.

The Abbé-Lenart Mixer is built of any required metal in sizes from ½ to 330 gal. Easy to operate and clean.

Write for the "tell-all" Catalog No. 62.

ABBÉ ENGINEERING CO.
46 CHURCH STREET NEW YORK 7, N. Y.
Mills • Mixers • Sifters for Any Process

When inquiring specify CP A4169 — see handy form pages 2-3

Cut Cost OF HANDLING DRUMS, BARRELS THIS SIMPLE, SAFE EASY WAY!

SIMPLE HOOK-ON



SABIN ONE-MAN TRUCK

EASY LIFTING



One man, and a small one at that, can easily load and transfer up to 800 lb. drum or barrel loads, automatically, smoothly — and without helpers — with this amazingly simple and strongly built truck. It pays for itself over and over again in time and labor saving. Exclusive Third-Wheel Feature insures better balance, increased safety.

Also Tote Pan, Box, Carboy and Keg Trucks

THE SABIN MACHINE CO.
6534 Carnegie Ave., Cleveland 3, Ohio

Write for FREE BULLETIN No. 45

When inquiring specify CP A4170 — see handy form pages 2-3

IF THESE OR SIMILAR LIQUIDS ARE HANDLED IN YOUR PLANT

Investigate

BLACKMER ROTARY PUMPS

Acids
Alcohols
Asphalt
Beer
Butane
Dyes
Fuel Oil
Gasoline
Glue
Mash
Mayonnaise
Molasses
Oils
Paints
Resin
Soaps
Soups
Syrups
Tar
Tomatoes
Yeast

Write for Bulletin 307— FACTS ABOUT ROTARY PUMPS

which explains why the "Bucket Design" (swinging vane principle) automatically compensates for wear and how the buckets, when finally worn out, are easily replaced and the pump restored to its normal capacity.

BLACKMER PUMP COMPANY
1840 Century Avenue — Grand Rapids 9, Michigan

POWER PUMPS - HAND PUMPS · EZY-KLEEN STRAINERS ·

When inquiring specify CP A4171 — see handy form pages 2-3

PRODUCTION

Steam Treatment Protects Drying Machines; Now In Use In Pulp Paper Mills

Corrosion of steam lines and return condensate piping in industrial plants has been met through the use of an organic chemical treatment proportioned into the steam. Pulp and paper mills on the West Coast have installed feeders to introduce a solution of Glucosates into the steam flow ahead of the drying machines. A special edition of the HOH Lighthouse (D. W. Haering & Co. publication) contains an article on this development. The proportioning units being activated by the steam flow through the header, automatically respond to any variation in steam consumption and guarantee accurate and continuous treatment dosages. The chemical passivates corrosion through the formation of an inhibitor film on the metal surfaces of the system piping. The absorbed film is of molecular dimension and does not interfere with the transmission of heat through the pipe walls. The solution, dispersed in the vapor, is carried through the entire system and is present in the condensate at and after the condensation point thereby maintaining the inhibitor film intact. Leaks in the heating piping of the drying machines, especially in the U-bends carrying steam or condensate from one set of coils to another, are no longer maintenance problems. Shutdowns for repairs with consequent loss of production are avoided and longer life assured for drying coils.

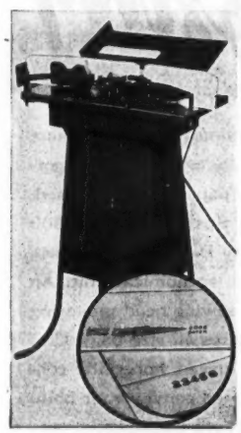
D. W. HAERING & CO., Dept. CP, 205 W. Wacker Drive, Chicago 6, Ill.

When inquiring specify CP A4172 — see handy form pages 2-3

★

Dater for Labels, Cartons, Bags

Mark may be date, control number, size, flavor, etc.



Floor model code dater

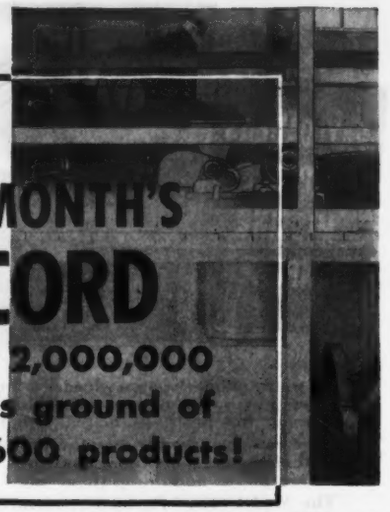
Uses — With this code dater labels, flat cartons or bags are piled in an infeed magazine, automatically separated, conveyed individually through a marking section to be imprinted and for regular shaped labels piled in an outfeed magazine; for irregular labels or cartons run off in a basket or onto a belt.

Description — The machine consists of a pedestal stand with a door inside of which is contained the electric motor, suitable pulleys and belts and a system of gears suspended and operated in an oil trough at all times; infeed magazine, separating device, marking die, marking clutch and trip, ink roller and outfeed magazine. The electrical parts usually consist of the toggle off and on switch and an electric motor, ¼ HP, 110 volt AC, 60 cycle, single phase. Model will accommodate cartons, bags or labels approximately not less than 3 inches in their length with practically no restrictions in their length up to 10 or 11 inches. Mark may be date, control or lot number, color, size, part number, flavor, etc. Dies and type are interchangeable and are made of metal. Impression is either blind (without ink) or an inked permanent one on almost any surface.

ADOLPH GOTTSCHO, INC., Dept. CP, 1 Hudson St., New York 13, N. Y.

When inquiring specify CP A4173 — see handy form pages 2-3

A SIX MONTH'S RECORD —over 2,000,000 pounds ground of over 600 products!

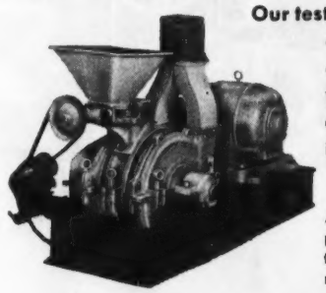


Typical installation of Stainless Steel No. 2TH MIKRO-PULVERIZER in large plant, discharging directly to mixer below, eliminating rehandling of material.

One manufacturer reports a total of over two million pounds of material of at least six hundred different products ground in their five MIKRO-PULVERIZERS during a six-month period. In addition to making these quick changes from one product to another without contamination, less manpower was required than before.

The complete ease and quickness with which a MIKRO can be cleaned, makes possible such records and advantages. And, with their small tolerance of particle-size limits, the MIKRO adequately meets today's demand for finer and more uniform products.

Accurate particle-size control, elimination of dust, lower operating costs, and the fact that every MIKRO is built to suit a particular application—have caused more and more firms to turn to it as the answer to their difficult reduction problems.



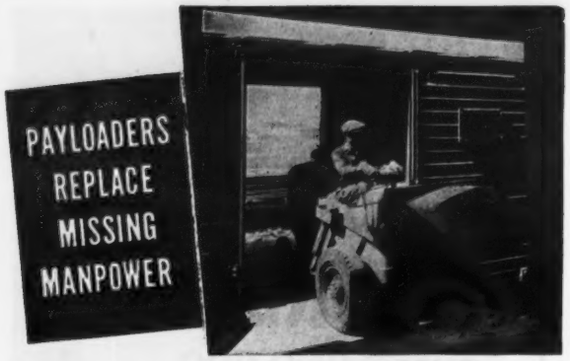
Our test grinding facilities are available without cost or obligation. Send for your copy of Confidential Test Grinding Data Sheet.

THE MIKRO-ATOMIZER
A new mechanical screenless pulverizer for producing ultra-fine powders of 1 to 25 micron particle size.

PULVERIZING MACHINERY COMPANY
60 CHATHAM ROAD · SUMMIT, N. J.
NOW...2 TYPES TO MEET MOST PULVERIZING NEEDS

MIKRO-PULVERIZER
MIKRO-ATOMIZER
Reg. U. S. Pat. Off.

When inquiring specify CP A4174 — see handy form pages 2-3



Why worry about the men who are not to be had? In many process plants, the manpower problem for handling bulk materials has been eliminated with Hough Payloaders. These compact, readily-maneuverable units speedily pick up their loads, hoist them and carry them to nearby or distant points and dump them into trucks, bins or pits. The Model "HA" Payloader, pictured, will load, carry 100′ and dump at the rate of 25 tons or more per hour. Note how easily this unit goes in and out of box cars, where it is a great time saver. ***Hundreds of Payloaders are in Service with nearly every nationally known Fertilizer and Chemical Company. Ask for Bulletin 149.***

THE FRANK G. HOUGH CO.
Libertyville, Illinois
"Since 1920"

HOUGH Payloader SHOVELS

When inquiring specify CP A4175 — see handy form pages 2-3

PRODUCTION

Alkaloid Shortage Relieved by Ion Exchange Process

Synthetic exchangers used in production of quinine, scopolamine and other drugs

Uses — Two of the most recent of the growing list of applications of ion exchange processes are isolation and recovery of important alkaloids — critically scarce during the war — and the production of enzymes, hormones, vitamins and other physiologically important substances. *Features* — The advantages offered by ion exchange processes suggest their importance as equal to that of techniques of distillation and solvent extraction. *Description* — It is to be pointed out that ion exchange processes have now moved on from the sphere of chemistry into that of biochemistry. Examples of this that may be cited include methods for the production of hormones, enzymes, etc. Synthetic exchangers — "Amberlites" have played important parts in the processing of blood plasma, isolation of amino acids, demineralization of water for pharmaceutical purposes, recovery of valuable tartrates from winery wastes and of copper from petroleum residues, removal of formic acid from formaldehyde, isolation of thiamin, etc. A process has been developed for the isolation and recovery of such vital medicinal alkaloids as morphine, atropine, scopolamine, quinine and quinidine, — in some cases in actual commercial production. An installation in Brownsville, Texas was put into operation last year for the recovery of scopolamine from plants grown in the U. S. This drug in addition to its more familiar

Uniform Separation

FOOD PRODUCTS — CHEMICALS — METALLICS
NON-METALLIC MINERALS

The new model GAYCO Centrifugal air separator makes possible the uniform and increased recovery of fine material within a range of 40 to 400 mesh.

- **Greater Capacity**
- **Cleaner Trailings**
- **99% Through 325 Mesh**
- **25% to 30% greater recovery of fines**
- **Not affected by variation in speed or rate of feed**



The Gayco Separator Handles

SUCH PRODUCTS AS

BAGASSE	GROUND HAIR
CASEIN	GROUND OATS
COCOA POWDER	GUM ARABIC
COTTONSEED MEAL	SOY FLOUR
FERTILIZER	SPICES
	SUGAR

Universal Road Machinery Co.

RUBERT M. GAY DIVISION 117 Liberty St. New York 6, N. Y.
Canadian Representative: F. H. Hopkins & Co., Ltd., Montreal
FACTORY & LABORATORY, KINGSTON, N. Y.

When inquiring specify CP A4177 — see handy form pages 2-3



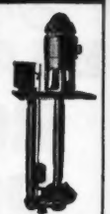
A GOOD INVESTMENT for plants where 100 lb. or larger filled, cotton, jute or paper bags are closed, the Union Special Class 20500 Heavy Duty Bag Closer is a fast, dependable, economical unit. An adjustable sewing head mounting accommodates all size bags. Unit has power driven, horizontal conveyor, inclined conveyor, or both; or has conveyor transmission only for plant production line. Three control systems available, including single pedal control of conveyor drive and sewing head. Write for Union Special Bulletin No. 200, describing the complete line of Union Special bag closers, sewing heads, stitch types, methods of closure, variety of installations and other useful information.

When inquiring specify CP A4176 . . . see information request blank, pgs. 2-3

They Will PROVE to You How GOOD They Are
PUMPS *"by Aurora"*



No matter how exacting your requirements, there is a size and type of Aurora Centrifugal or Apco Turbine-Type Pump to handle it PERFECTLY. Products of experience. Built by exclusive makers of fine pumps.



NSA Aurora Centrifugal Sump Pump

Aurora Deep Well Turbines for all conditions—4" to 24"



Type AD Hor. Split Case, Two Stage Centrifugal

Type OD Hor. Split Case Double Suction Single Stage Centrifugal



Type G M C Close-Coupled Centrifugal

Apco Turbine-Type Pumps The simplest of all pumps. Ideal for small capacity, high head duties. Silent, compact and lasting.





Type GGU Side Suction Single Stage Centrifugal



APCO Horizontal Condensation Return Unit



APCO Single Stage Turbine-Type

Write for CONDENSED CATALOG M or See Our Catalog in SWEETS.

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA Always PUMPS — AURORA PUMP COMPANY
62 Loucks Street, AURORA, ILLINOIS

When inquiring specify CP A4178 — see handy form pages 2-3

applications has been mentioned as an important preventative of motion sickness, was formerly obtained chiefly from Belgium, Hungary, Italy and Yugoslavia. The shutting off of these sources made development of local supply imperative. The success of the Brownsville project led to adaption of its methods by the U. S. Army. A field process was developed for the manufacture of antimalarials such as quinine by a portable unit. This eliminates the extreme difficulties of transporting the crude bark through jungles to processing plants many miles away.

The new ion exchange permits the production of a ten grain dose at a cost of little more than three-tenths of a cent. Detailed information of Amberlites synthetic exchangers on request.

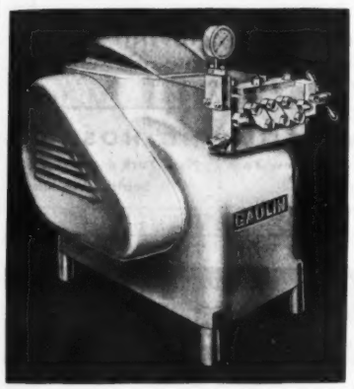
RESINOUS PRODUCTS & CHEMICAL CO., Dept. CP, Philadelphia, Pa.

When inquiring specify CP A4179 — see handy form pages 2-3

★

Homogenizers 200 — 2500 Gallons

Clean, compact construction; motor mounting permits fine adjustment, alignment



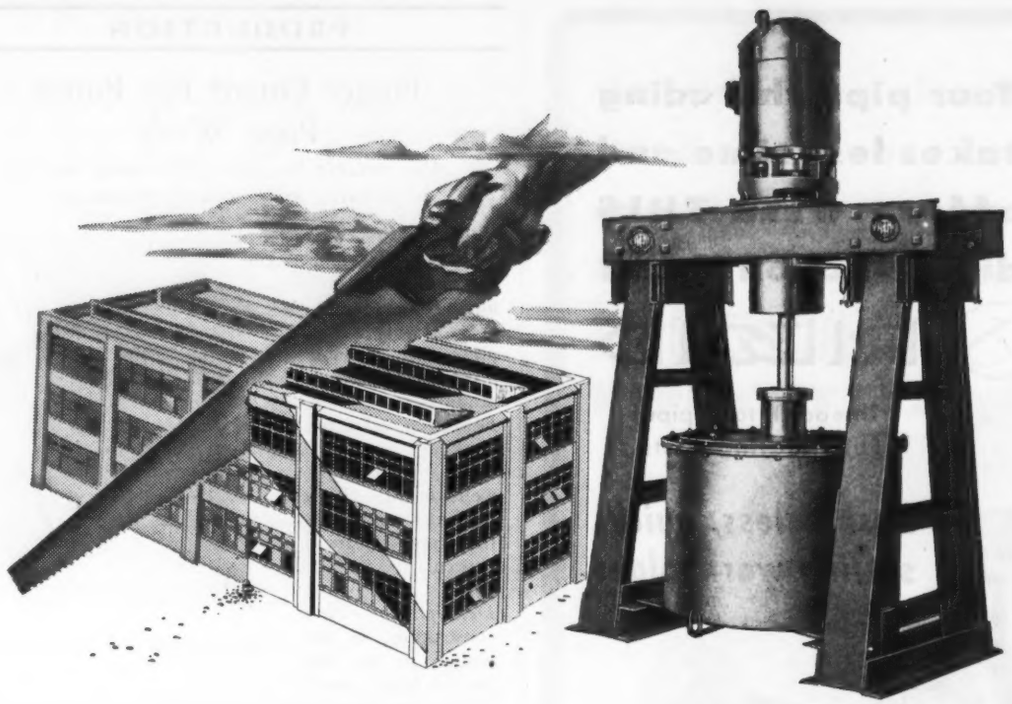
200-500 gallon homogenizer

Uses — Practically all dairy products are improved by homogenization — milk, cream, cheese, condensed milk, evaporated milk, powdered milk and eggs; also various other food processing operations and allied industries. Other important applications are in connection with production of wax emulsions: waxes, waterproofing compounds, pharmaceutical and cosmetic preparations. Also emulsified cod liver oils, milk of magnesia, liquid soaps, etc.

Features — These homogenizers (in sizes from 200 to 2500 gallons) offer the advantages of exceptionally clean, compact construction. Some of these as in the 200-500 gallon unit have the motor mounted inside the base and easy accessibility is provided by a door on one side and by removal of belt guard on the other. The entire mechanisms of this maker's units are built complete in the factory with the exception of the motor and vee belt drive. All parts coming into contact with the product are 18-8 stainless steel. The motor when located inside the base is mounted on a racker arm for easy adjustment and permanent alignment. The shaft on which the motor is supported by bronze bushings, eliminating any chance of rusting or freezing. A 75-125 gallon homogenizer is offered to meet the needs of the small processor. A splash motor is mounted outside with a vee belt drive to the back shaft. Cylinder fittings are all 18-8 stainless steel. Literature is available which illustrates and describes "Manton-Gaulin" Homogenizers in detail and includes brief data and pictures on a lab homogenizer of 25 gph capacity and a two stage colloid mill for handling dispersions and emulsions for which the homogenizer is not applicable. Additional information is available on request.

MANTON-GAULIN MFG. CO., Dept. CP, Everett 49, Mass.

When inquiring specify CP A4180 — see handy form pages 2-3



BETTER RESULTS IN A SMALLER SPACE

SEDIMENTATION: *AT&M Centrifugal Gives Higher Recovery*. Day after day, in new fields and old, centrifuging is bringing fresh proof of its ability to deliver better results faster—and in smaller space than less modern equipment requires. "Better results", moreover, include end-product-improvement, for in very many instances AT&M Centrifugals turn out a product of higher quality than former methods could achieve.

In separating oil and water from protein content, for example, a processor of fish meal is now using an AT&M Centrifugal. The high speed of this machine produces a dryer cake for final drying-out and results in much higher recovery of the valuable solids and oils.

CLARIFICATION: *AT&M Centrifugal Saves Materials and Manpower*. The many new, successful uses of centrifuging indicate practically unlimited scope for future applications. Not only where time and space are all-important, but also in cases where old techniques are ineffective, AT&M Centrifugals are solving production problems. As time goes on they will be used increasingly to lower costs and broaden sales horizons.

To recover an expensive grinding compound from oil, AT&M designed a special clarifying basket to centrifuge the oil, taking out the solids and recycling the grinding fluid in one swift operation. Results: End of a threatened shortage of materials and release of customer's manpower for other duties.

Consider Centrifuging for

extraction . . . filtration . . . dehydration . . . precipitation . . . impregnation . . . coating. See AT&M's 4-page catalog in CHEMICAL ENGINEERING CATALOG.

Consider AT&M for

capable engineering service — no charge for study and recommendation. Centrifugals and baskets in all machinable metals and coatings. Strict confidence preserved. AMERICAN TOOL & MACHINE COMPANY, 1425 Hyde Park Ave., Boston 36, Mass., 30D Church Street, New York 7, N. Y.

SAVE TIME, SPACE AND COSTS WITH

A.T. *and* M. CENTRIFUGING

3-5-11

When inquiring specify CP A4181 . . . see information request blank, pgs. 2-3

Your pipe threading takes less time and effort with THIS direct-action No. 1R

RIGID

Threads 1" to 2" pipe
Full-floating posts

Bushingless, quick-setting workholder



● If you prefer a poster threader, here's an improved one that's ready to thread 1", 1¼", 1½" or 2" pipe most quickly and with least bother. Quick-set foolproof workholder has no bushings to bother with. No cockwobble in threading—handle pulls head and dies directly, floating posts merely taper thread, do no driving. Alloy or high-speed steel chaser dies cut clean perfect threads, steel and malleable construction assures long service—and it sells at a popular price! . . Buy No. 1R at your Supply House.



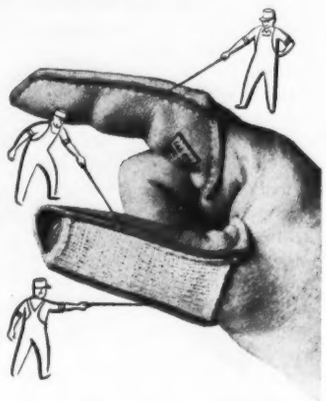
RIGID
WORK-SAVER PIPE TOOLS
THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U. S. A.

When inquiring specify CP A4182 — see handy form pages 2-3

PRODUCTION

Finger Guard For Punch Press Work

Also suitable for those performing buffing, grinding and assembly operations



Finger guard with cool webbing back

Uses — Practical protection for thumb and finger in buffing, polishing, grinding, punch press and assembly work, inspection, sanding, etc.

Features — Leather working face with cool, comfortable, well fitting elastic webbing back makes this type of guard particularly serviceable.

Description — New construction is embodied in this improved finger guard. The leather wearing surface extends two-thirds around the finger, giving added protection to the wearer. Also, there are more hours of service in this "Superguard" as the seams are well up on the sides of the finger, out of the wearing zone. The "Superguard" comes in three sizes: small, medium, and large and in three materials: Cowhide Split, Grain Leather and Lightweight Capeskin.

INDUSTRIAL GLOVES CO., Dept. CP, Danville, Ill.

When inquiring specify CP A4183 — see handy form pages 2-3

★

Shears Use Pivoted Blade Design

No slides, gears; all parts of assembly welded into one integral unit

Uses — Various sizes for cutting plate of all thicknesses from 12 gauge to 1¼ inches and for lengths from 6 feet to 16 feet are provided in this new line of power driven metal cutting shears.

Features — The machines employ a revolutionary pivoted-blade principle which makes possible some outstanding advantages. There are no slides or guides to wear out of true and cause inaccuracies. The upper blade operates on two heavy pivot pins secured to the end housing and travels in a circular path. Especially desirable is the ease with which the knife clearance may be varied to suit the thickness of the plate being cut. Turning a hand crank conveniently located on the right end housing changes the gap between the knives. A large dial indicator indicates the clearance in thousandths of an inch, and also shows the plate thickness that may be cut for any knife setting. The "Steelweld" shears may be readily arranged for squaring, slitting, or set at any intermediate position for notching, and firmly locked. This feature is included on all machines with standard 24 inch deep throats but is not furnished on the smallest size where the throat depth is 18 inches.

Description — Both frame and blade are of all-welded steel, one-piece construction. Because the knife adjustment is made by movement of the upper blade, there is no need of moving the bed as is customary with most shears. Consequently the beds on "Steelweld" shears are welded integral with the frames. The large crown is welded to both

LIGHT STRONG FLEXIBLE



FLEXAUST

SPIRAL-WIRE-REINFORCED HOSE

Equally suitable for exhaust or suction service in ventilation, light dust collection, etc. Highly flexible, yet reinforcement holds shape rigidly under heavy suction. Sizes 1½" to 24". Write for full information.

Companion products for other uses:

BLOFLEX	PORTOVENT
Non-reinforced, collapsible	Ring-reinforced, retractable

AMERICAN VENTILATING HOSE CO.
15 Park Row, New York 7, New York
Plants: Amesbury, Massachusetts • Seattle, Washington

When inquiring specify CP A4184 — see handy form pages 2-3

FLOOR MATTING for Promoting Safety • Providing Comfort • Reducing Fatigue Furthering Sanitation



NEO-CORD Counter-Tred MATTING
The only successful oil, grease, and acid resistant matting.

AMERIFLEX FLEXIBLE HARDWOOD LINK MATTING
The links are held on galvanized steel springwire framework. Lies flat. Follows contour of the floor. Beveled edges. Can be rolled or folded.

AMERITRED Solid Plastic Friction MATTING
For ramps, stairs, landings, shower and locker rooms, entrances, in front and back of counters. Good scrapeage. Lies flat. Comes in sections 29" x 62" x 9/64". Can be laid side by side for larger areas, or trimmed for smaller areas.

AMERICAN Counter-Tred MATTING
Used in lavatories, refrigerators, shower and locker rooms, and behind serving counters. Ridged bottom affords aeration and drainage. ⅜" thick, 24" wide, any length.

EZY-RUG Rubber Link MATTING
Traps all dirt at the door, keeps it out of sight and prevents tracking through the building, reducing cleaning costs and frequency of redecorating necessitated by dirt whirled into the air by the heating system. Modernizes and beautifies entrances, lobbies and corridors. Available with lettering. Beveled edge. Lies flat. Reversible, its durability is doubled.

Write for Prices and Folder "A Mat for Every Purpose."

AMERICAN MAT CORPORATION
"America's Largest Matting Specialists"
1798 Adams Street • Toledo 2, Ohio

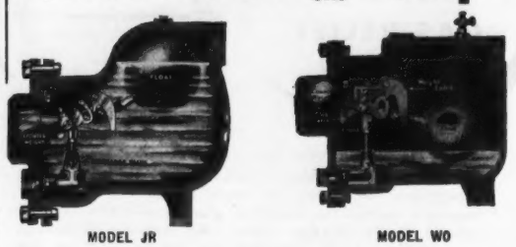
When inquiring specify CP A4185 — see handy form pages 2-3

For

FAST ACTION

SPECIFY

Nicholson STEAM AIR GAS Traps



MODEL JR MODEL WO

Featuring rapid intermittent action with enormous drainage capacity, Nicholson weight-operated traps have been positively proved, in plants the nation over, to be dependable as efficiency promoters. Let us send you details. Nicholson also makes piston-operated and thermostatic steam traps, air, gas, gasoline traps — for all power and process applications. Pressures to 1500 lbs.

Catalog 444

W. H. NICHOLSON & CO.

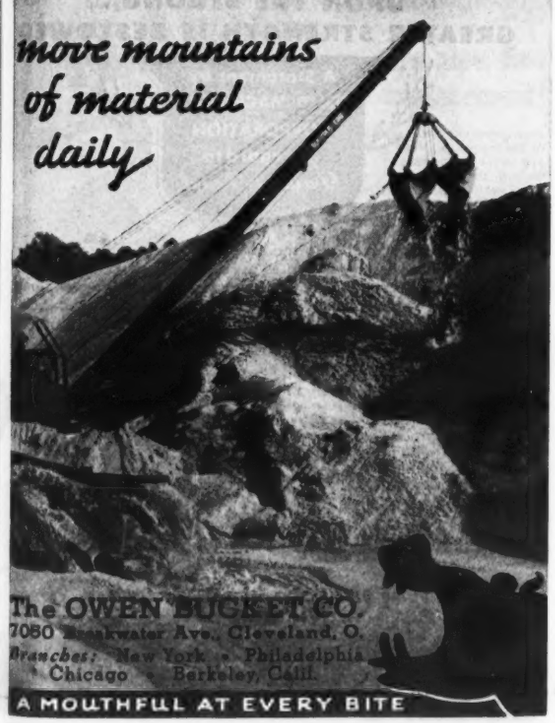
181 OREGON ST., WILKES-BARRE, PA.

Valves ★ Traps ★ Steam Specialties

When inquiring specify CP A4186 — see handy form pages 2-3

OWEN BUCKETS

move mountains of material daily



The OWEN BUCKET CO.

7080 Breakwater Ave., Cleveland, O.

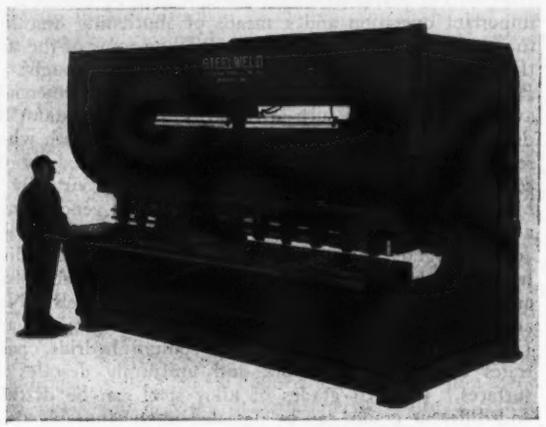
Branches: New York • Philadelphia • Chicago • Berkeley, Calif.

A MOUTHFUL AT EVERY BITE

When inquiring specify CP A4187 — see handy form pages 2-3

PRODUCTION

end housings. This method of welding all parts of the assembly into a single integral unit provides maximum strength with minimum deflection, and assures permanent accuracy. Heavy spring-operated mechanical hold-downs



No. 610 shear for plate to 3/4" x 10' wide

hold the plates firmly during shearing and automatically clamp thick plates with higher pressure than thin plates. Easy operating back gauge mounted on ball bearings is provided.

CLEVELAND CRANE & ENGINEERING CO., Dept. CP, Wickliffe, Ohio.

When inquiring specify CP A4188 — see handy form pages 2-3

★

Pliable Transparent Aprons

Featherweight plastic material; bib or waist style



Protective Apron

Uses — This new apron for protecting workers and their clothing against oils, stains, acids and chemicals has been tested under a wide variety of service conditions.

Features — It is unusually light weight and tailored to provide fit that assures utmost comfort and ease of movement for working efficiency.

Description — The light weight transparent material is durable and long wearing. Clear in color it is .006 to .008 inches thick. The apron is furnished with grommets and tie strings at top of the bib and at waist line. These hold the apron comfortably in place. The selection includes a wide range of sizes and either bib or waist style is available. The apron has been named the "Gardwell Oil-Chem." Complete information concerning these and other safety garments for process and industrial plant workers on request.

SAFETY CLOTHING & EQUIPMENT CO., Dept. CP, 7016 Euclid Ave., Cleveland 3, Ohio.

When inquiring specify CP A4189 — see handy form pages 2-3

Cut your pipe cleanly with more ease and speed with this new efficiency-balanced RIDGID PIPE CUTTER



. . . with fast-action thin-blade cutter wheel

● Slap this new RIDGID Cutter on a pipe, turn it tight and roll it right through your pipe in a few easy turns — thin wheel leaves practically no burr. You like the well-balanced feel of its new style malleable frame and the thin blade tool-steel wheel always cuts true—every cutter individually tested to assure it. Your choice of 5 sizes to 6" capacity and 4-wheel cutters to 4." For easier pipe cutting order RIDGIDs, at your Supply House.

4-wheel No. 42 for fast quarter-turn cutting.

RIDGID

WORK-SAVER PIPE TOOLS

THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U. S. A.

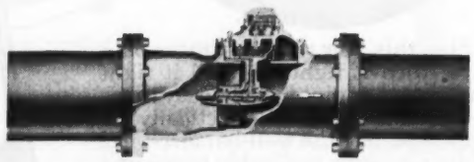
When inquiring specify CP A4190 — see handy form pages 2-3

TRACKS DOWN WATER WASTE FOR NATIONALLY KNOWN MANUFACTURER



A large manufacturing plant never knew how much water it wasted until a Builders Propelloflo Meter was recently installed. The 8" line, previously unmetered, supplied water at 70 lbs. per sq. in. for continuous blowdown, cooling heat exchangers, washing down the boilers, cooling the bearings of coal feeders, etc. When this Propelloflo Meter showed that an excessive amount of water was being used . . . between 7 and 8 million lbs. of water per 24 hrs. . . . a new boiler room routine was adopted which affected large savings.

The Propelloflo Meter tracks down waste and is successfully used in Industry for metering lines carrying hot or cold water, gasoline, light oil and white water . . . also other free-flowing liquids such as clear effluent from sewage and trade waste treatment plants. Its streamline Venturi design creates uniform velocity distribution and gives exceptional accuracy through a wide range of flow with low loss of head. The Propelloflo is complete in itself and easily installed in any pipe. For Bulletin 350A, address Builders-Providence, Inc., (Division of Builders Iron Foundry), 47 Codding St., Providence 1, R. I.



The Propelloflo is a product by the makers of the famous Builders Venturi Meter and Builders Shuntflo Steam Meter.

BEFORE YOU BUY *ANY* FLOW METER,

CHECK WITH BUILDERS

BUILDERS-PROVIDENCE

BUILDERS

When inquiring specify CP A4191 — see handy form pages 2-3

PRODUCTION

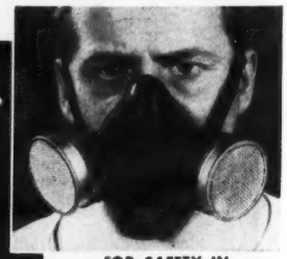
Process Shortens Descaling Time

No pitting of work; no metal loss; no current needed

Uses — For plants in which the descaling of metals is an important operation and a means of shortening descaling time, avoiding pitting of metal and saving some of the steel that may be lost through action of theacid is sought. *Features* — This process recently announced as commercially available now offers such advantages. It is a sodium hydride process — in a sense an alkaline pickling bath which requires no electric current. The scale, reduced by the sodium hydride dissolved in fused caustic, virtually is blasted from the surface of the metal by the generation in a subsequent water quench. Only a few seconds' dip in acid to brighten the surface is then required. The sodium hydride bath is effective on such metals as nickel, cobalt, and copper as well as on alloy and stainless steels. Nine advantages of the process tabulated from experience are: (1) The bath, containing active sodium hydride, penetrates throughout the work and uniformly descales all surfaces. (2) All grades of alloy steel can be descaled and different grades can be descaled interchangeably using the same procedure. (3) There is no loss of metal as in other processes where losses amount to 2 or 3%. (4) No harm can result from too long treatment; the hydride bath not pitting the work. (5) Since the bath does not attack metal at its working temperature, an ordinary low carbon steel tank can be used. (6) No electric current

Approved UNDER NEW U. S. BUREAU OF MINES SCHEDULE

THE NEW **M.S.A.** CHEMICAL CARTRIDGE RESPIRATOR



FOR SAFETY IN DEGREASING AND GENERAL USE OF SOLVENTS, THINNERS, PAINT REMOVERS, ETC.

Safety against respiratory hazards to workers from light but harmful concentrations of organic vapors is furnished by the new M.S.A. Chemical Cartridge Respirator—officially approved by the U. S. Bureau of Mines! Now, approved protection is available against benzene, acetone, carbon tetrachloride, alcohol, ether, formaldehyde, toluene, gasoline, petroleum distillates and other hazards—joined with advanced new Comfo cushion facepiece, comfort, easy fit, balance, and simplicity of cleaning and maintenance. *Write for the descriptive details.*

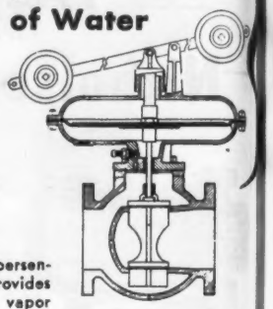
MINE SAFETY APPLIANCES CO.

Braddock, Thomas and Meade Streets, Pittsburgh 8, Pa.

District Representatives in Principal Cities

When inquiring specify CP A4192 — see handy form pages 2-3

Pressures of Less Than **One Inch of Water operate this DAVIS GAS RELIEF VALVE!**



• The Davis No. 335W Supersensitive Gas Relief Valve provides exceptional sensitivity on vapor recovery systems in chemical plants, refineries, and on volatile liquid storage tanks. An oversize diaphragm assures dependable operation on a fraction of an inch of water!

The by-pass valve for throttling gas flow steadies valve action and prevents vibration under the most severe operating conditions. There is no pulsation.

The diaphragm chamber is close coupled to the body. There is no packing box. Exclusive rain cap protects the diaphragm in outdoor installations.

These features assure sensitive, efficient, economical, trouble-free service. Write for Bulletin G-1.

Davis Regulator Co., 2562 S. Washtenaw Ave., Chicago, Ill.

DAVIS VALVE — **DAVIS REGULATOR COMPANY**

When inquiring specify CP A4193 — see handy form pages 2-3

PEERLESS PUMPS

UPON THE STRONG, GREATER STRENGTH IS BESTOWED

A Statement by FOOD MACHINERY CORPORATION in regard to *Dayton-Dowd*

An important advance in the history of the pumping industry now for the first time makes available a new conception of integrated pump service to customers. *Dayton-Dowd*, long associated with sustained high quality—a distinguished name on centrifugal pumps—has become an integral part of the *Peerless Pump* organization.

This merger of broad installation-wise experience, modern technical research and alert engineering talent assures our customers for both Horizontal and Vertical types of pumps that the name "Peerless" stands as the guarantee for quality and progress.



PEERLESS HORIZONTAL PUMPS

-formerly Dayton-Dowd

PEERLESS PUMP DIV.—FOOD MACHINERY CORP.

Factories: Los Angeles, Calif., Quincy, Ill., Canton, O.

F.M.C. builds with STEEL

WAR-TIME BUILDERS OF THE VICTORIOUS "WATER BUFFALO"

PEACE-TIME BUILDERS OF TOP-FLIGHT WATER PUMPS

When inquiring specify CP A4194 — see handy form pages 2-3

is necessary. (7) The working temperature of 700° F. is sufficiently low — there is no deleterious effect on the structure of the metal. (8) The hydride bath does not produce hydrogen embrittlement of the steel. (9) Savings in time, space and disposal of waste residue are important factors. Sodium hydride dissolves in molten caustic and the solution reduces ion oxide to metallic iron. The sodium hydride reacts with the scale to form caustic soda, which is the material comprising the bath itself. The reaction: $Fe_3O_4 + 4NaH \longrightarrow 3Fe + 4NaOH$.

Operation — In the first large installation based on laboratory experience, the caustic tank was 4′ 10″ x 15′ x 5′. Six generators to supply the caustic bath continuously with These generators are rectangular boxes open at the bottom sodium hydride were mounted in the tank on one side. and have a cover with feed holes provided with removable caps so that additional sodium bricks may be added. The bottoms of the generators are below the average bath depth. A gas inlet tube passes through the cover of each box and delivers hydrogen into the generator near the bottom. Hydrogen is obtained by dissociating ammonia in a standard dissociator. After dehydrating the bath, a concentration of 1.5 per cent sodium hydride is built into it. A steel water tank located about six feet from the caustic tank is used for quenching work. Exhausters in the wall above the tank serve as ventilators. The descaling unit, in the first installation, was in a corner of the pickle room and no additional equipment was required other than that used in the usual pickle house. Hot rolled rod is suspended on a horizontal rack and submerged in the fused caustic bath for 15 minutes. On removing the work and quenching it in the water tank, most of the scale is removed. The remaining reduced material which gives a gray appearance to the surface is then quickly removed by a one to two minute dip in 10 per cent nitric acid after which the work is washed and dried in the usual manner. In four years' production the process has required only mechanical improvements. Later a tank 4′ 10″ x 28′ x 5′ was installed to take bars as well as other work. The installation has a capacity for treating 60 tons a day and is used for wire, rod, and bar stock of various grades of stainless steel. Easing of war restrictions makes the process available in U. S. free of license or royalty.

E. I. DU PONT de NEMOURS & CO., Dept. CP, Wilmington, Del.

When inquiring specify CP A4197 — see handy form pages 2-3

★

Heavy Steel & Alloy Forgings

An interesting new 8-page bulletin has just been published describing the company's facilities for precision forgings regardless of size, metal or alloy. Illustrated are many outstanding forgings recently produced, including a description of Titusville's research, engineering and plant facilities. The company has forge presses from 500 tons to 2000 tons capacity, 172 welding machines in its two large welding shops, three large modern machines and pattern shops, a large number of 60-foot lathe of 80" swing, boring lathe up to 108 feet in length, as well as modern vertical and horizontal heating furnaces, oil and water quenching tanks and other unexcelled equipment. Copies of this new bulletin "Titusville Heavy Steel and Alloy Forgings" may be secured on request.

STRUTHERS-WELLS CORP., Dept. CP, Titusville, Pa.

When inquiring specify CP A4198 — see handy form pages 2-3

Here it is!

A NEW METHOD
A NEW VEHICLE

—loads and unloads highway trucks and trailers much faster, at far less cost than hand methods. Carries on Clark Tructractor's pioneering leadership in BETTER METHODS of handling material.



1000 lb. capacity

Gas or Battery Powered

Now! CLARK
TRUCLOADER

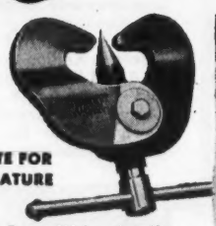
CLARK TRUCTRACTOR
BATTLE CREEK, MICHIGAN, U.S.A.

When inquiring specify CP A4195 — see handy form pages 2-3

Schedule your shut-downs with
FLANGE JACKS
on any pipe line gasket replacement!

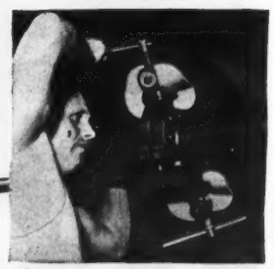


The only tool that takes the guesswork out of replacing gaskets, regardless of line pressure or location. Flanges are parted quickly and held in perfect alignment without damage to faces . . . shock and jarring of pipe lines are eliminated . . . there is no danger from flying wedges . . . no sparks caused by hammer blows. Flange-Jacks eliminate costly shutdowns, make possible fast, economical repairs in hard-to-get-at locations . . . offer maximum safety.



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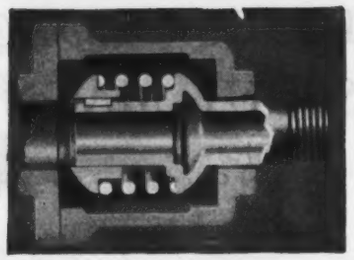
Write Dept. W for details or see your nearest distributor



T. G. PERSSON COMPANY
224 GLENWOOD AVE., BLOOMFIELD, NEW JERSEY

When inquiring specify CP A4196 — see handy form pages 2-3

4 good reasons ...why JOHNSON rotary JOINTS



Speed Up Production and Cut Down Maintenance

1. Completely Packless—positive seal
2. Self-Oiling—no lubrication required
3. Self-Adjusting—joint is pressure sealed
4. Self-Aligning—joint absorbs all misalignment

Yes, Johnson Rotary Pressure Joints end all the troubles of the old style stuffing boxes and steam fits. In addition, they provide a simple way to install more efficient methods of syphon drainage. And—very important—is the fact that Johnson Joints pay their own way out of savings in maintenance alone.

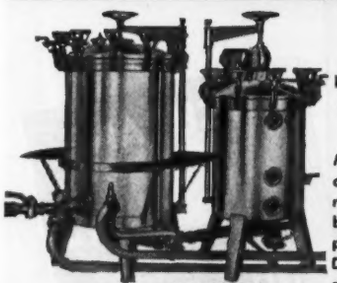
Write for complete information.

The Johnson Corporation
826 WOOD STREET THREE RIVERS, MICHIGAN

When inquiring specify CP A4199 — see handy form pages 2-3

INDUSTRIAL PLANTS
CHEMICAL PLANTS
FOOD PLANTS
..Your PLANT!

THERE IS NO OTHER *Filter* LIKE THIS





Illustrated are the radically different Klein Ideal Filter Leafs with discharge tubes that practically eliminate the danger of clogging.

The Stainless Steel
KLEIN
IDEAL DIATOMACEOUS EARTH FILTERS AND SLURRY FEEDERS

Many important and exclusive improvements and radical innovations have been incorporated in the precision-built Klein Ideal Diatomaceous Earth Filters and Feeders. Constructed of stainless-steel they utilize a new exclusive filter principle that will bring you a new high in maximum efficiency, minimum maintenance and product uniformity.

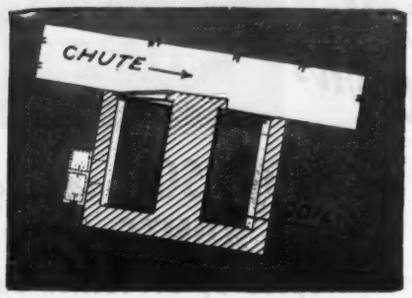
ESTABLISHED 1909

WRITE TODAY for full information and the latest Klein Bulletin.

KLEIN
FILTER & MANUFACTURING COMPANY
1225-29 SCHOOL STREET • CHICAGO 13 ILLINOIS

When inquiring specify CP A4200 — see handy form pages 2-3

DINGS *Double-Gap* SPOUT MAGNETS



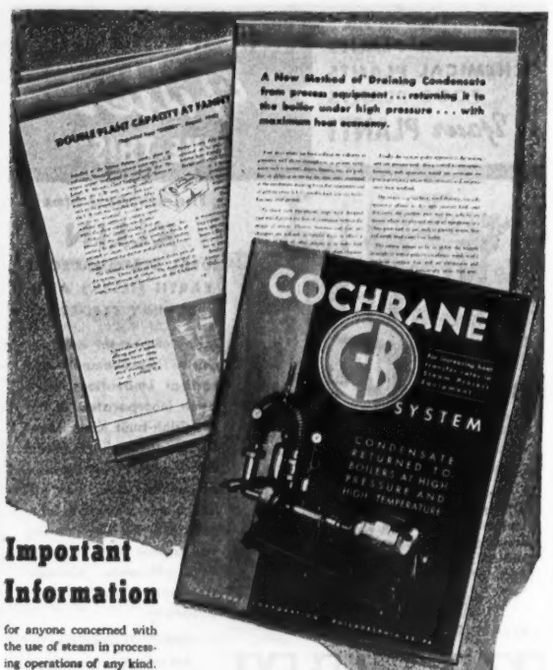
***afford* EFFECTIVE, ECONOMICAL IRON REMOVAL**

DINGS Double-Gap Spout Magnets are High Intensity separators for removing iron from material passing down a chute. Installed in the chute as shown in the diagram, they hold iron fast below a step in the magnet face. It is practically impossible to dislodge an accumulation of iron until the current is turned off. For automatically discharging the iron an automatic gate can be supplied as an integral part of the magnet. Here's trouble-free, positive, economical tramp iron-removal. Dings also builds a complete line of Magnetic Pulleys and Suspension Magnets. Write for details today.

Dings Magnetic Separator Co.

510 E. Smith St., Milwaukee, Wis.

When inquiring specify CP A4201 — see handy form pages 2-3



Important Information

for anyone concerned with the use of steam in processing operations of any kind. A means of increasing production, improving quality and saving fuel in percentages that are almost unbelievable. A copy of this publication will be mailed upon request. Use coupon.

COCHRANE CORPORATION
3707 N. 17th Street, Philadelphia 32, Pa.
Please send me a copy of your Publication No. 3710.
Name _____
Title _____
Company _____
Address _____ City _____ State _____

When inquiring specify CP A4202 — see handy form pages 2-3

PRODUCTION

Duplex Test Set for O_2, CO_2 Direct Analysis

Test made in minute to accuracy of ½ of 1%



Duplex Test Set

Uses — This "Duplex Test Set" comprising two separate, portable indicators, one for direct carbon dioxide analysis, the other for direct oxygen analysis are packed in a compact carrying case. Case contains aspirator and rubber hose which provides for connecting to the desired sampling point.

Features — Simplicity of operation. Cold weather proof; spillproof; rugged. The set is suitable for many shop tests including checking oxygen content in process gases, heat treating atmospheres, hydrogen cooled generators, and in the nitrogen over the oil in large transformers; measuring oxygen and carbon dioxide content of flue gases, storage atmospheres, etc.

Description — Both instruments employ the fundamental

Start with the RIGHT RESISTORS



Plans for new products and the modernization of existing ones are on every drafting board. In the electrical and electronic industries manufacturers are indeed entering a competition of design. You and every other manufacturer are studying available components.

When selecting resistors, give consideration to the developments that have been made to meet the severe conditions of the past several years. A resistor that better meets your requirements will add to the utility of your product.

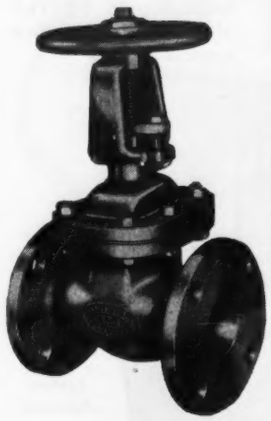
The new Ward Leonard Hand Book "Resistors" gives resistance values, and shows terminals, mountings and enclosures. Send for a copy today.

WARD LEONARD
RELAYS • RESISTORS • RHEOSTATS
Electric control devices since 1892

WARD LEONARD ELECTRIC COMPANY • **92 SOUTH STREET**
OFFICES IN PRINCIPAL CITIES **MOUNT VERNON, N. Y.**

When inquiring specify CP A4203 — see handy form pages 2-3

LONG VALVE LIFE *Without Stain* at Botany Worsted Mills Lanolin Plant



Lanolin, ingredient of beauty aids, must be free of metallic contamination. Its processing, however, involves the use of such corrosives as caustic soda, alcohol and hot acids. To prevent stain, Botany adopted corrosion-resistant Aloyco Valves — and reduced repairs and replacements. You, too, can insure products saleability and reduce maintenance costs by installing Aloyco Stainless Steel Valves. Write for data book.

No. 111 Gate Valve

Its non-fouling double disc wedge provides drop-tight closure. Free to rotate, wears evenly. Easily repaired without special fixtures.

ALOYCO
Stainless Steel VALVES and FITTINGS
GATE VALVES • GLOBE VALVES
Y VALVES • CHECK VALVES
LEVER THROTTLE GATE VALVES
TANK VALVES
SCREWED FITTINGS
FLANGED FITTINGS
GAUGE GLASS FITTINGS
ALLOY STEEL PRODUCTS COMPANY, INC.
[illegible] WEST ELIZABETH AVENUE — LINDEN, NEW JERSEY

When inquiring specify CP A4204 — see handy form pages 2-3

Every LEE KETTLE *carries this* CODE CERTIFICATE



LEE—always headquarters for advanced ideas and improvements in processing equipment proudly announces that ALL Steam Jacketed Kettles are built to A.S.M.E. specifications and the A.S.M.E. Code Certificate is furnished on each kettle—for *your* greater protection.

LEE 418

When inquiring specify CP A4205 — see handy form pages 2-3

Protect Clarity of Bottled Products
with
POROUS STONE STRAINERS



Showing Strainer Head removed...from a 3-Filterstone unit of 15 gpm capacity. Discs are 7½ inch diameter.

A LeVal Porous Stone Strainer placed just ahead of the bottling machine removes all lint, pipe scale, chips, and other particles which may contaminate your product after filtering.

Rigid Le Val Filterstones withstand acids and high temperature. Cleaned in a few minutes by backwashing or spraying. Write us for details.

LEVAL FILTERS
WHITING CORPORATION
District engineers in 26 principal cities
15667 Lathrop Ave. Harvey, Illinois

When inquiring specify CP A4206 — see handy form pages 2-3

BUSCHMAN PORTABLE CONVEYOR
Cuts Handling Costs!



Save up to 30% in handling costs with Buschman Portable Conveyor. Standard sections, 10' and 5' long, convenient to carry from place to place where needed. Easily, quickly coupled together to any length, thru exclusive "Quick-Eez" feature. Curved sections available in 90° to 30° sizes. Mobile units are mounted on swivel casters. Stands are 4-legged, providing adjustable heights from 12" to 48". Low in price!

Write for Bulletin 10 Showing Applications

THE E. W. BUSCHMAN CO. INC.
Representatives in Principal Cities
413 New Street Cincinnati 2, Ohio

When inquiring specify CP A4207 — see handy form pages 2-3

PRODUCTION

principle of chemical absorption and therefore give readings that are independent of voltage, humidity, temperature, or atmospheric pressure conditions. Operation of each indicator is identical. For example — a sample of the atmosphere or gas to be tested is pumped into the oxygen indicator by squeezing about a dozen times on the aspirator which is attached to the rubber hose. The indicator is then turned bottom-side up and back again, causing the absorbing fluid to mix with the sample and pick-up all the oxygen in the sample. Absorption of the oxygen creates a suction which draws the absorbing fluid up into the graduated tube in an amount equal to the oxygen absorbed. Thus, the level of the fluid column shows the percentage of oxygen which can be read directly from the O_2 scale at the right side of the center tube. Carbon dioxide tests are made by the same method, using the CO_2 indicator. The complete test with either instrument can be made in less than one minute, with accuracy of within ½ of 1% O_2 or CO^2. Complete details on "Fyrite" test sets are given in a pamphlet 700-342.

BACHARACH INDUSTRIAL INSTRUMENT CO., Dept. CP, 7000 Bennett St., Pittsburgh 8, Pa.

When inquiring specify CP A4208 — see handy form pages 2-3

★

Flexible Diaphragm Cloth

Resists temperature changes; of interest to pump and diaphragm manufacturers

Uses — Although developed primarily for use in the automotive field, this cloth will find many other applications where strength, operating temperature, flexibility and resistance to various solvents are important factors.
Description — This 80.80 base, style DL-011 diaphragm cloth is available in standard 100 to 500 yard rolls, approximately 37 inches wide.

IRVINGTON VARNISH & INSULATOR CO., Dept. CP, 6 Argyle Terrace, Irvington 11, N. J.

When inquiring specify CP A4209 — see handy form pages 2-3

★

Plasticizing Oil Has Less Odor

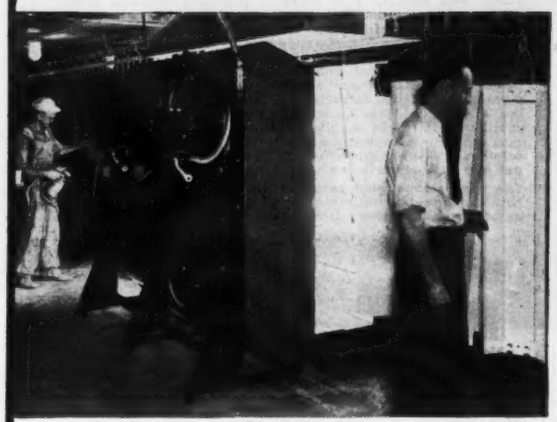
Very viscous with good color retention; used as impregnant for waterproof paper coating etc.

Uses — This new plasticizing resin, known as "Nevillac TS", having very little odor and good color retention, is soluble in practically all solvents except water, glycerine and the higher polyhydric alcohols. It is misciple with ethylene glycol and its di — and tri — derivatives. It is compatible with zein, cellulose derivatives, synthetic rubbers, terpene, alkyd, phenolic, vinyl and coumarine-indene resins. It is a very suitable compounding material to use with zein as it imparts waterproofness and lasting flexibility. The resulting protein film retains its alcohol solubility, gloss and slick-feel.
Description — "Nevillac TS" is a clear, amber, resinous oil with a vague phenol odor. It has an average molecular weight of 250. Specific gravity at 30.0/15.6° C is approximately 1.08. Refractive index at 25° C is 1.599. Distillation is essentially above 300° C with slow decomposition beginning at about 370° C.

NEVILLE CO., Dept. CP, Pittsburgh 25, Pa.

When inquiring specify CP A4210 — see handy form pages 2-3

FOSTORIA *Evenray* INFRARED SYSTEMS
CUT COSTS



A typical installation with which finish coats on fluorescent lighting fixture parts are baked in an average of 10 minutes.

Over 4,000 plants now use Fostoria Evenray to speed, improve, and lower the cost of heating operations. Savings of 50% and more are common through faster production, less equipment, less space, fewer man-hours.

Evenray Systems provide complete flexibility in application of heat intensities and distribution. All size lamps available today, clear glass or reflector style, may be accommodated. Gold, the most efficient reflector of infrared rays, is used throughout oven interiors. Thus, the higher efficiency of Evenray Systems usually does more with less equipment.

Fostoria "know-how" includes broad experience in BAKING of finishes, armature insulation, etc.; DRYING textiles, ceramics, paper, ink, food, sand molds, etc.; PREHEATING plastics, metal, glass, etc.

Write for Catalog and Information Now!

Send for the fundamental information about Infrared and the Fostoria Evenray System. Technical data applicable to your operations will be included if you send us general facts about your problem.

THE FOSTORIA PRESSED STEEL CORPORATION
FOSTORIA, OHIO
Export Sales Office
401 Broadway, New York City

Highest Efficiency in the Utilization of RADIANT ENERGY

EVENRAY SYSTEM
fostoria
FOR BAKING • DRYING • PREHEATING • DEHYDRATING
Trade Mark Reg. U. S. Pat. Off.

Listed by Underwriters Laboratories, Inc.

When inquiring specify CP A4211 — see handy form pages 2-3

SMALL PUMPS CORRECTLY ENGINEERED FOR YOUR NEEDS

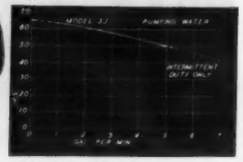
Eastern has designed and built pumps to meet manufacturers' specific needs for many years. Some of these needs have been complex, where the design of a completely new pump was necessary to solve a pumping problem never before encountered. Others were run-of-the-mill, where one of Eastern's standard pumps from a line of over 600 different modifications was recommended with the knowledge that it would do the job required of it. Only a company with mechanical, electrical and chemical engineers on its staff could know the correct solution to so many and varied pumping problems. Eastern has such a diversified engineering staff. Thus your pumping problems, especially where small size and light weight combined with high performance and economy of operation are factors, are assured of quick solution. Special pumps when designed and approved, can be put into production when a reasonable quantity is involved.

The pumps illustrated here are all centrifugals, yet are designed for widely differing applications. Write for our NEW catalog showing these and many other Eastern Pumps.

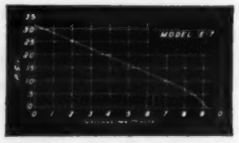


Model 3-J

3 STAGE HEAVY DUTY CENTRIFUGAL PUMP



Model 3-J illustrated, is designed for pumping moderate quantities of liquids against higher pressures. For example, one of its many uses is pumping liquids through filter presses. It is close-coupled. Open vane impellers mounted directly on motor shaft extension. No internal pump bearings necessary. Pump is sealed by either an adjustable stuffing box or a mechanical rotary seal. Available in Cast Iron, Bronze, Stainless Steel, Monel Metal and Hastelloy. Quotations on other alloys on request. Power: ¾ H.P. Heavy duty General Electric ball bearing motor in various frame enclosures and for almost all current requirements. Weight: 74 lbs. Size: 17¼" x 8½" x 10¼". Pump performance shown on chart illustrated.





Model E-7

SINGLE STAGE CENTRIFUGAL PUMP

Model E-7 illustrated, is a high speed, light duty pump designed for intermittent use where compactness, light weight, long life and minimum size are important factors. One of its many and varied uses is for the feed on chucks of machine tools. As it is equipped with a Universal motor, the pump should not be used near flammable liquids. Equipped with either stuffing or a mechanical rotary seal. Available in Cast Iron, Bronze, Stainless Steel, Monel Metal and Hastelloy. Quotations on other alloys on request. Power: 1/5 H.P. General Electric Universal Motor. Weight: 8 lbs. Size: 9" x 4" x 4". Pump performance shown on chart illustrated.



Model U-34



VOLUTE CENTRIFUGAL PUMP

Model U-34 illustrated, is designed for handling moderate volumes at relatively high heads, utilizing a minimum of space. It may be used for continuous duty operation. It is an excellent transfer pump. Close-coupled with open impeller mounted directly on motor shaft extension without use of an internal pump bearing. Available with mechanical rotary seal only. Standard models available in Monel Metal, Stainless Steel, Cast Iron, and rough or finished Bronze. Quotations on other alloys on request. Power: Heavy duty General Electric ball bearing motor in various frame enclosures and for almost all current requirements either 1/3 H.P. or ½ H.P. as the application demands. Weight: 36 lbs. Size: 12¼" x 6½" x 6½". Pump performance shown on chart illustrated.

EASTERN ENGINEERING COMPANY

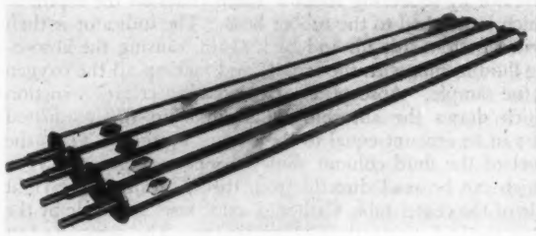
49 FOX STREET **NEW HAVEN 6, CONN.**

When inquiring specify CP A4212 — see handy form pages 2-3

PRODUCTION

Hexagon Shaped Rolls

Contribute to better dyeing among many other advantages; supplied for any make kettle



"Hex" shaped stainless steel rolls

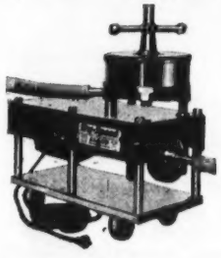
Uses — These hexagon shaped stainless steel rolls can be supplied for any make of dye kettle. Many textile mills find that hexagon shaped rolls of stainless steel offer certain definite advantages.

Description — These rolls give long, trouble-free service regardless of length or whether they are idlers or driven. The "hexagon corners" have a valuable pulling power on many types of fabrics. The shape of the roll also produces a continual shaking and opening up of the fabrics that is an aid to better dyeing.

RODNEY HUNT MACHINE CO., Dept. CP, Orange, Mass.

When inquiring specify CP A4213 — see handy form pages 2-3

ALSOP'S



NEW "Sealed-Disc" FILTERS

Now, at last, are available to you Even in Stainless Steel, Monel, Bronze, etc.

At Low Prices Made Possible by Large Production

Will you need faster and better filtration to meet anticipated production schedules? Check up on the NEW Alsop "Sealed-Disc" Filter.

1 . . . completely enclosed, it's leak-proof

2 . . . high capacity and high filtering speed in exceptionally compact unit

3 . . . made in stainless, Monel, bronze, etc. or other corrosion-resisting material at extremely low cost

4 . . . filter discs easily and quickly changed

Sizes, with or without pumps, range from 1 gpm to thousands of gallons per hour. Catalog 144 gives details. In writing for it tell us about your problem.

3-AL-7

ALSOP

ENGINEERING CORP.
103 Alsop Square
Milldale, Conn.

Filters, Filter Discs & Sheets, Mixers, Agitators

When inquiring specify CP A4214 — see handy form pages 2-3



When inquirnig specify CP A4215 — see handy form pages 2-3



Smooth Vibrationless

MICHIGAN

MACHINED-PITCH

PROPELLERS

***for* MIXING *or* AGITATION**

For replacement or original equipment. Perfectly balanced to avoid whip and strain on equipment. Wide range of sizes and metals in 2 and 3 blade models. Free consultative engineering service. Write for details.



MICHIGAN WHEEL CO.
GRAND RAPIDS 3, MICHIGAN

When inquiring specify CP A4216 — see handy form pages 2-3

Six Ways to

INCREASE YOUR FLOOR SPACE WITH SKID PLATFORMS, SEMI-LIVE SKIDS & FLOOR TRUCKS

1. Tier loaded skids in out of way places.
2. Use semi-live skids to hasten car and truck loadings.
3. Install specially designed production-line skids to speed handling.
4. Use specially designed super structure units to handle two or three times as much.
5. Two or three conveniently "spotted" lift jacks will handle many semi-live skids—therefore save room.
6. Use removable-shelf floor trucks for parts usually piled on work tables.

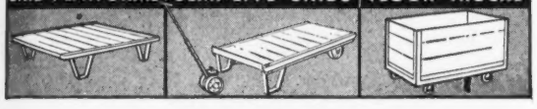
The faster a job is finished the faster it will be out of the way —on its way to the consumer.

Write for illustrated literature on Ironbound: 1. Cost saving, 2. Labor saving, 3. Space saving materials handling equipment.

IRONBOUND BOX & LUMBER CO., 60 Hoffman Place, HILLSIDE, N. J.

Ironbound MATERIALS HANDLING DIVISION

SKID PLATFORMS | SEMI-LIVE SKIDS | FLOOR TRUCKS



When inquiring specify CP A4217 — see handy form pages 2-3

Here's Money-Saving Protection For Your Compressed Air Operated Machinery and Instruments

Now, regardless of volumes required or fluctuating pressures, the new Bird-White Pur-O-fiers completely and effectively remove all moisture, oil, dirt and other foreign matter from compressed air or gas lines—preventing costly corrosion and gumming in compressed air-operated machinery and instruments.

Operating on the principle of centrifugal action, a high speed Turbo-rotor forces the tiny particles of foreign matter outward where they are trapped and drained off.

Single units can accommodate up to 100 cubic feet. Above this range multiple units are recommended.

New applications for Bird-White Pur-O-fiers are being developed every day. Write for Bulletin No. 10 giving complete information.

BIRD-WHITE COMPANY
Dept. CP, 3119 West Lake Street
Chicago 12, Illinois



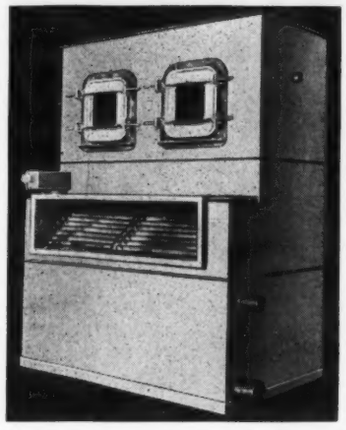
PATENTED

When inquiring specify CP A4218 — see handy form pages 2-3

PRODUCTION

Large Capacity Humidity Control Units

Vertical contactor of heavy duty type, for 10,000 *to* 70,000 *cfm*



Vertical heavy-construction contactor

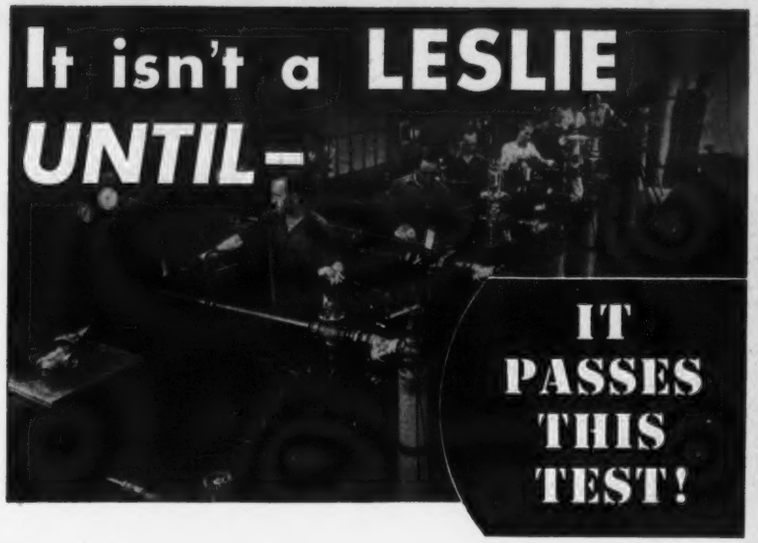
Uses — The new heavy duty unit described and pictured here is an addition to the line of various sized "packaged" units from 1350 cfm to 5000 cfm.

Features — These "Kathabar" systems provide a reliable means of dehumidifying — humidifying the air independently of temperature; especially useful where low dew point is required. Because of the mechanical simplicity and accuracy of control of air moisture this unit is of particular interest in connection with air conditioning. Units are already in operation in foundries, and in manufacturing of glass, matches, photographic film. "Kathabar" systems provide conditioned air as low as 19 degrees dew point, or about 6% relative humidity at 90 degrees F. Units have been tested at dew points as low as 80 degrees below zero.

Description — The "Kathabar" dehumidifies or humidifies to maintain just the desired percentage of relative humidity in the air that is needed for the particular application. Precooling, reheating and by-passing of the air for the purpose of eliminating humidity is not necessary with this system. A single, one path airflow is utilized. Waste steam is used for heating where available. Well or city water provides most economical cooling. Refrigeration can be used. The "Kathabar" system utilizes a chemical absorption medium for controlling the moisture content of the atmosphere. This "Kathene" solution is a single salt with a low vapor pressure. Its capacity and rate of absorption are determined by its temperature.

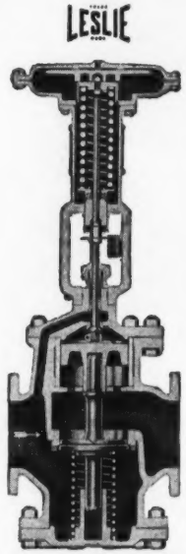
SURFACE COMBUSTION CO., Dept. CP, Toledo 1, Ohio.

When inquiring specify CP A4219 — see handy form pages 2-3



Built into every step in the manufacture of every LESLIE Regulator is an almost endless chain of rigid control, inspection and test operations, starting with control of the molten metal itself and following right on through to the individual finished part.

But, that is not enough! For *no* LESLIE Regulator has earned the right to go out on a job and render long, trouble-free operation until it has passed completely assembled through the Test Department shown above.



LESLIE Class D-1, Single-Seated, Balanced Diaphragm Regulating Valve with Type PR Control Pilot.

Here, each Regulator is placed in a test steam line at actual working pressures and put through its paces by a battery of skilled test engineers—another in a long series of reasons why the name LESLIE is often considered synonymous with low maintenance cost—why LESLIE Regulators stay on in service year after year without replacement. If this is the type of performance you are seeking in a Regulator, why not consider a LESLIE?

YOUR COPY of LESLIE Catalog of Engineering Data covering our complete line of Regulators, Controllers, Strainers and Whistles, will be sent on request—no charge—send for it today.

LESLIE CO.
281 Grant Avenue • Lyndhurst, N. J.

Look for "LESLIE Regulators" in your classified telephone directory in the following cities where LESLIE factory trained engineers are located.

Baltimore, Md.	Kansas City, Mo.	Rutherford, N. J.
Boston, Mass.	Los Angeles, Cal.	San Antonio, Tex.
Bridgeport, Conn.	Louisville, Ky.	San Francisco, Cal.
Chicago, Ill.	Milwaukee, Wis.	Savannah, Ga.
Cleveland, Ohio	Montreal, Que., Can.	Seattle, Wash.
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Fremont, Neb.	Philadelphia, Pa.	Toronto, Ont., Can.
Greenville, S. C.	Pittsburgh, Pa.	Troy, N. Y.
Houston, Tex.	Portland, Ore.	Tulsa, Okla.
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	Rochester, N. Y.	Youngstown, Ohio

ESTABLISHED 1900
LESLIE CO.

PRESSURE REDUCING VALVES · PUMP GOVERNORS · PRESSURE CONTROLLERS
TEMPERATURE REGULATORS · SELF CLEANING STRAINERS · LESLIE-TYFON WHISTLES

When inquiring specify CP A4220 — see handy form pages 2-3

DURAMETALLIC Packings



Seals with Bearing-like Precision...



"ENGINEERED FOR THE JOB"

Write for a copy of reference file of bulletins describing types and styles of Durametallic Packings.

Like a bearing, packing should have good lubrication . . . this is an outstanding characteristic of DURAMETALLIC . . . the flexible, pre-lubricated, metallic packing that provides a film of lubrication to rod, shaft or stem under compression.

The PERFECT SEAL

DURAMETALLIC CORPORATION

KALAMAZOO MICHIGAN

CHICAGO • DALLAS • DETROIT • HUNTINGTON, W. VA. • HOUSTON • KANSAS CITY, MO. • LOS ANGELES • MONTREAL
NEWARK • NEW ORLEANS • PITTSBURGH • ST. LOUIS • SAN FRANCISCO • SEATTLE • TULSA • YOUNGSTOWN, O.

When inquiring specify CP A4221 . . . see information request blank, pgs. 2-3

PRODUCTION

Gasoline Powered Tractors

Four wheel units; 2 speeds; forward, reverse



Tractor provides clear vision

Uses — This Model K-5 tractor is compactly built to work easily in narrow aisles, in railway cars, up gangplanks, steep grades and in practically any area and application where materials and trailer handling by tractor is required.
Features — It is simple and rugged in construction and has extra provisions for driver safety and comfort, inspection and service accessibility. Clear vision in every direction assures safety and convenience in operation. High speed reverse keeps maneuvering time at a minimum. Operation in either direction with equal speed and efficiency. These features contribute to time savings in coupling operations. The short turning radius speeds work in close quarters. Four wheels for stability.
Description — Power plant is 4 cylinder L-head heavy duty industrial engine, Continental Series F 162; 3-7/16″ bore; 4⅜″ stroke. Special cushion type tires on drive wheels. Complete spring suspension on all four wheels. Two speeds forward and two reverse. Maximum speed at 2000 rpm. 10 miles per hour. Wheelbase is 36½ inches; overall length 67 inches; turning radius 62 inches. Four models with draw bar capacities of 3000, 3300, 3600 and 4000 pounds; capacities, trailing loads on dry level concrete: 73, 80, 88 and 98 tons.
Additional information on request.

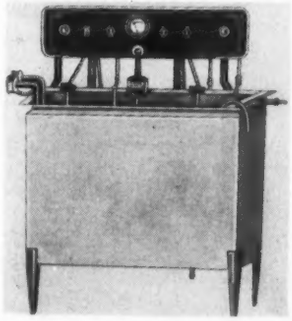
TOWMOTOR CORP., Dept. CP, 1224 East 152nd St., Cleveland, Ohio.

When inquiring specify CP A4222 — see handy form pages 2-3

★

Constant Temperature Tank

For plating solutions, etc., also used for materials for coating metal parts



Tank with control panel

Uses — For melting materials used in coating metal parts; in research laboratories to provide temperature of plating or metal treating solutions to any specified degree between the temperature of the cooling liquid and 400°F.
Features — The tank is provided with dual temperature controls. One of these controls operates the heating elements and opens on an increase in temperature. The other control operates the valve which provides the cooling medium. This control closes on an

increase in temperature. This feature is especially valuable in development and control of the plating solutions where the solution must be brought to a specified temperature and then cooled to maintain this temperature because of the heating effect of the current.

Description — The tank is constructed of welded steel and surrounded by transite insulating material. The tank is provided with immersion type heating elements of 2000 watts capacity, an electric stirrer and cooling coils. The unit is provided with complete control panel on which are mounted relay, switches, thermocouple type temperature indicator. Tank capacity 11 gallons. Tanks of stainless steel, copper, etc. available. Heating elements can be supplied for use under tank if immersion type are not suitable. Tank has drainage tube in bottom; overflow on side. In laboratory tank may be used as a source of constant water temperature for refractometry, polarimetry, etc.

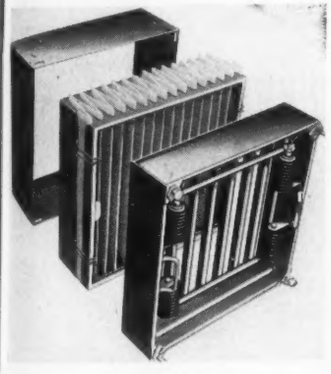
LABORATORY SPECIALTIES, INC., Dept. CP, 114 S. Wabash St., Wabash, Ind.

When inquiring specify CP A4223 — see handy form pages 2-3

★

Use of Cellulose Fibers Reduces Weight of Air Filters

Collector element of electronic filter is formed of sheets of special cellulose paper



Frame, base section, power pack of electronic air filter

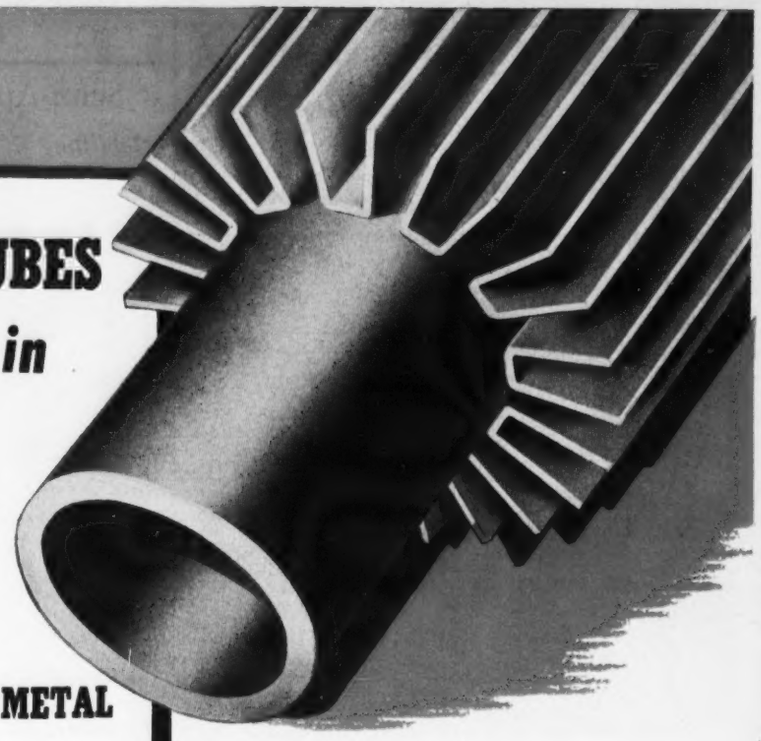
Uses — This is a new addition to the maker's line of electronic air filters in which the collector element is electrostatically charged "Airmat" paper.

Features — Introducing a new principle in electronic air filtration, the arrestance rating of the "Electro - Airmat", when tested by discoloration method is 90% or better with atmospheric smoke or dust. This efficiency is obtained at the normal velocity of 35 fpm through the "Airmat" media and the standard rating of 1000 cfm per standard sized 24 inch x 24 inch unit. The filter weighs 40% less than many electronic filters employing metal plate collectors and requires about 30% less floor area.

Description — "Airmat" is a celluose product composed of a number of plies of porpos, tissue-like sheets formed of short cellulose fibers in "jack-straw" arrangement. When an electrostatic charge is applied to the "Airmat" the plies tend to separate and each individual fiber becomes a collecting electrode. "Airmat" is also an efficient filtering media so that when power is shut off for any reason it affords protection against the infiltration of dust due to "stack effects" in air-conditioning systems. The filters are easily installed and maintained.

AMERICAN AIR FILTER CO., Dept. CP, 125 Central Ave., Louisville, Ky.

When inquiring specify CP A4224 — see handy form pages 2-3



BROWN FINTUBES
now available in

- **COPPER**
- **RED BRASS**
- ***ADMIRALITY METAL**
- **CUPRO NICKEL**
- **MONEL METAL**
- ***CARBON STEEL**
- **CHROME MOLY STEEL**
- **STAINLESS STEEL**

***Standard Materials**

Now, whatever your heating, cooling, condensing or other heat exchanger requirement, you can employ Brown Fintubes, fabricated entirely of the metal best suited for the individual need. Available in a wide range of tube sizes, wall thicknesses, and number and depths of fins, they are ideally used not only in Brown Sectional Hairpin and other types of Brown Heat Exchangers, but also in the many special applications in which Brown Fintubes are regularly employed. Inquiries handled promptly. Let us help you with your requirements.

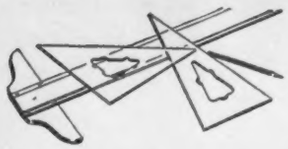
THE **BROWN FINTUBE** COMPANY
119 HURON STREET • ELYRIA, OHIO

Send for Bulletin No. 452

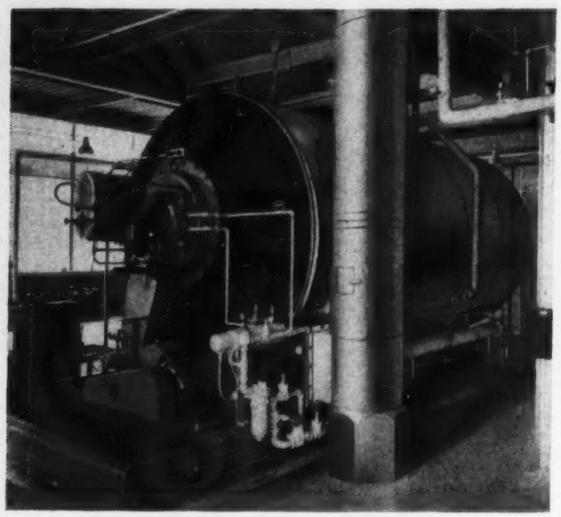


MANUFACTURERS OF BROWN RESISTANCE WELDED INTEGRALLY BONDED ONE-PIECE FINTUBES, AND FINTUBE HEAT TRANSFER PRODUCTS

When inquiring specify CP A4225 . . . see information request blank, pgs. 2-3



PLAN NOW TO CUT YOUR STEAM COSTS..



Gain a Clean, Efficient Boiler Room . . . Lower Steam Costs . . . with a Cleaver Brooks Steam Generator . . . Planned for Your Needs

LOWER STEAM GENERATING COSTS

Lead to Lower Production Costs. . .

CLEAVER-BROOKS Steam Generators are "tailored" for their job. They are installed to meet an individual plant's needs; Cleaver-Brooks puts unit into initial operation, instructs as to operation, care, and maintenance.

No recommendations are made until sufficient facts and figures have been compiled and a careful analysis completed of your steam requirements on the basis of today's load and tomorrow's anticipated need.

With this information, the most economically sized steam generator and related equipment to handle the load is then determined.

Application engineering, plus basically sound design and construction means that the maximum of value is provided from the day your Cleaver-Brooks Steam Generator is installed.



CLEAVER-BROOKS COMPANY
343 E. Keefe Avenue
Milwaukee 12, Wisconsin

WRITE on your Business Letterhead for the Free Steam Cost-Calculator — a ready-reference slide rule showing the comparative steam costs when using oil or coal as fuel.

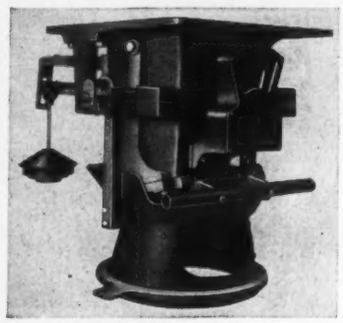
Cleaver-Brooks
STEAM GENERATORS

When inquiring specify CP A4226 — see handy form pages 2-3

PRODUCTION

Semi-Automatic Bagging Scales

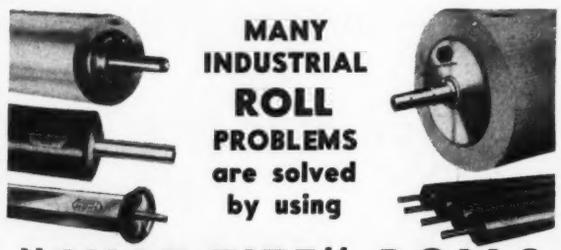
No lifting of bags during weighing-filling operations; capacity 4-6 100 *lbs. bags per minute*



Scale bolts to bin or hopper

Uses — For filling and accurately weighing up to six 100 pound bags per minute with such materials as grain, fertilizer, soybean meal, cottonseed cracked cake, minerals, salt, dry chemicals, etc.

Features — Up to six 100 pound bags filled and weighed per minute. These scales take up no floor space; easily attached at comfortable working height to present bagging spout or hopper. Over-and-under indicator located at convenient eye level. A special attachment makes scale portable so that it can be moved from hopper to hopper or from bin to bin. While the bag is raised the opening of the bag is slipped over the bell-shaped bottom of the scale; bag ring is dropped, automatically falls into position and holds the bag securely in place. Lifting bags on and off scale during weighing is eliminated. The bag holding ring is built in such a manner



MANY INDUSTRIAL ROLL PROBLEMS are solved by using

"SHAF-TITE" ROLLS



Many patented constructions provide strongest possible shaft setting. Your choice of many different types and materials—wood, rubber, iron, brass, stainless steel, plastic, etc. Whatever your roll problem, put it up to

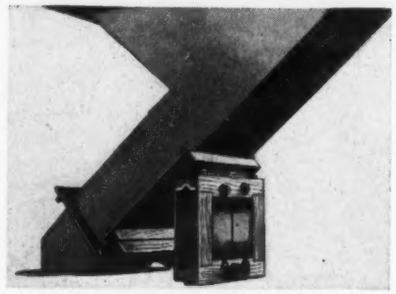
RODNEY HUNT

SEND FOR CATALOG TODAY!

RODNEY HUNT MACHINE CO.
273 Maple Street, Orange, Mass.

When inquiring specify CP A4227 — see handy form pages 2-3

SPROUT-WALDRON *Lifetime* NON-ELECTRIC MAGNETIC SEPARATOR



Save your grinders and other reduction machines and lessen fire hazards by installing this amazingly powerful metal catcher that removes metal from free-flowing materials. Easy to install in wood or metal spouts, requires no wiring, no maintenance cost, and lasts a lifetime. Inexpensive.

Made in sizes from 4" to 24".
Write for bulletin No. F-1144.

SPROUT, WALDRON & COMPANY
Manufacturing Engineers Since 1866
138 Sherman St.
Muncy, Penna.

When inquiring specify CP A4228 — see handy form pages 2-3



When inquiring specify CP A4229 — see handy form pages 2-3

that strain is evenly distributed thus preventing tearing and breaking of bags and sacks. After tare weight is adjusted to compensate for the weight of the bag, scale is set by means of beam and hand weights. Pulling cross bar forward opens feed gate; releasing bar closes it. Inverted cone shaped bell allows free flow; nothing clings to inside. Length, overall 32"; width, overall 17⅜"; height, overall 21¾"; shipping weight, crated 200 lbs. (approximate). Bulletin 30E on request.

O. K. SCALE CO., Dept. CP, 1389 Niagara St., Buffalo 4, N. Y.

When inquiring specify CP A4230 — see handy form pages 2-3

★

Midget Wax Melting Tank

Rapid heating from cold start; weighs 16½ lbs.



One gallon melting tank

Uses — For the protective coating of plugs, gauges, carbide tipped tools and similar objects. Melts waxes, glue, mastics, transformer compounds, etc. *Features* — Full compound "load" can be brought to dipping temperature from a cold start in a matter of minutes. Complete unit weighs only 16½ pounds. *Description* — This tank unit is especially suitable for service where a small sized unit is desired. It is named the "Midget-6" and has a one-piece inner vat of heavy warp-proof aluminum of high heat conductivity. Thermostatic controls automatically maintain heat at required temperature. The removable cover has insulated plastic knob handle. Neon pilot light provides for quick visual checking. Capacity of the heating elements is 1000 watt. The unit plugs in to any standard 110 volt AC lighting circuit. A dead air jacket between aluminum vat and outer steel acts as an insulator. Outer jacket has durable black enamel finish. Illustrated bulletin will be sent on request.

AEROIL PRODUCTS CO., Dept. CP, West New York, New Jersey.

When inquiring specify CP A4231 — see handy form pages 2-3

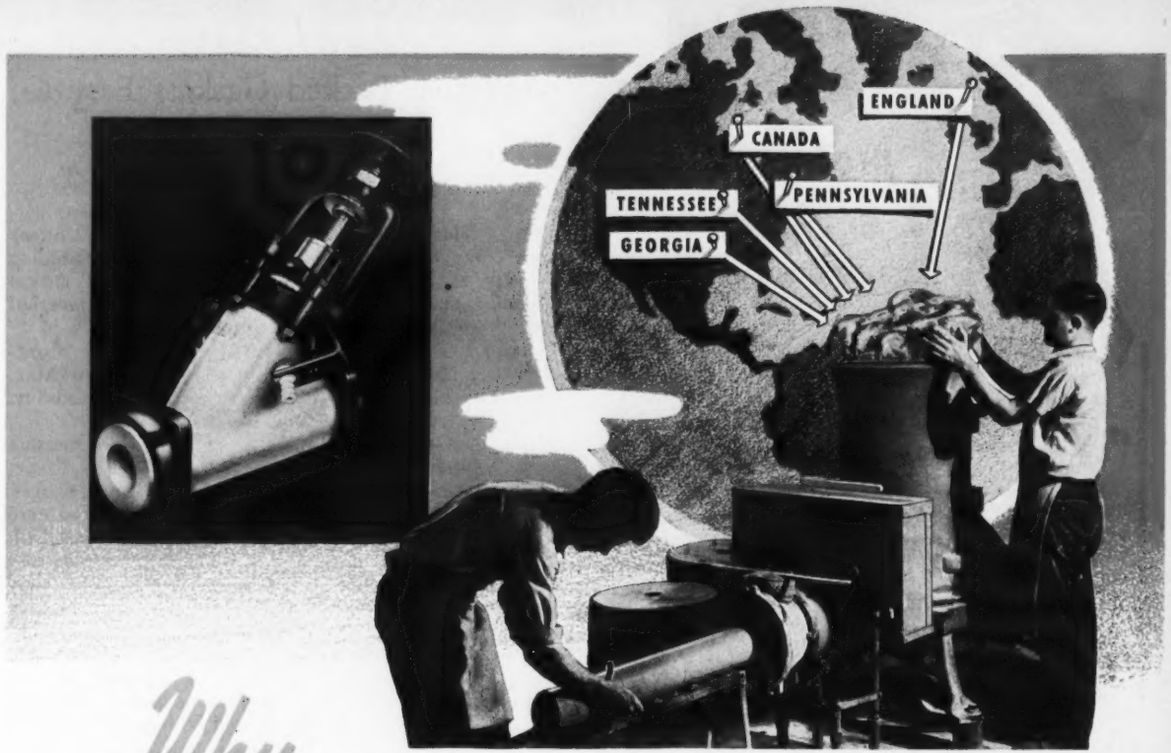
★

Electronic Controlling, Recording Instruments

A new catalog (No. 370) presenting a full line of recording and indicating instruments for measurement and control. Arranged for quick reference, and profusely illustrated, the sections deal with instruments for temperature applications, pressure, humidity, flow, liquid level, density, and other process variables. Control valves, planimeters, instrument accessories and supplies are included. This catalog is the first in which this company has been able to show its line of Dynalog electronic instruments, the sale and use of which has, until recently, been limited to military applications. Copies will be sent on request.

THE FOXBORO CO., Dept. CP, Foxboro, Mass.

When inquiring specify CP A4232 — see handy form pages 2-3



Why ... **You can be sure of higher CORROSION-RESISTANCE, positive NON-ABSORPTION with LAPP CHEMICAL PORCELAIN**

1 LAPP *SPECIFIED* CLAYS ARE *NOT* FOUND IN "BACKDOOR" CLAY PITS

Whether a ceramic successfully solves your processing problems may be decided by the qualities of the body itself. LAPP Chemical Porcelain is different from ordinary ceramics because it offers all the "natural" advantages of ceramics *developed to their highest degree.* Complete corrosion resistance to all acids (except HF), positive non-absorption, added mechanical strength and purity are *plus* advantages of LAPP Chemical Porcelain. These are made possible by its *extra* dense, homogeneous, *thoroughly* vitrified body. Producing that body depends, first of all, on the kind and quality of clay used. That's why LAPP has gone as far as necessary—even to England—to obtain carefully selected clays that meet rigid LAPP specifications for plasticity, impurity content, acidity and other important properties. And every carload is scientifically inspected at the plant before the clay goes into production.

If you've had trouble with ceramics on a problem ceramics should solve—it will pay you to experience the difference in LAPP Chemical Porcelain. LAPP Insulator Co., Inc., Chemical Porcelain Division, LeRoy, New York.

LABORATORY QUALITY IN PLANT PRODUCTION WITH

Lapp Chemical Porcelain

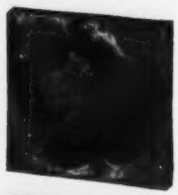
VALVES • PIPE AND FITTINGS • RASCHIG RINGS • TOWERS • KETTLES • FILTERS • SPECIAL SHAPES

—When inquiring specify CP A4233 . . . see information request blank, pgs. 2-3—



"My high Rust I.Q.* protects metal equipment!"

*Inhibitive Quality





Steel Block Test proves Eagle Super "66" is rust-inhibitive!

Here is how one steel block *looked after being imbedded in a regular insulating cement during the test period. Note the extent of the rust. Such corrosion also occurs on iron and steel equipment whether heated or cold.*

The other steel block *looked like this after being imbedded in Eagle Super "66" for the same test period. Note absence of rust. This shows how effectively the rust-inhibitive qualities of Super "66" can protect your heated equipment.*

As shown by Steel Block Test above, Eagle Super "66"... in addition to doing an unsurpassed job of insulating... actually inhibits rust!

High efficiency results from "Springy Ball" Structure

Eagle Mineral Wool, principal ingredient of Eagle Super "66", is made up of springy pellets containing countless dead air cells, providing highly efficient insulation. "Springy Ball" structure, created by these resilient pellets, is retained after the insulation dries, thus preserving its extremely low thermal conductivity.

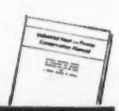


An easy-to-use, all purpose insulation

Eagle Super "66" does not break down or disintegrate. It gives exceptional protection, and is easily applied to almost any shape or size surface. It withstands a full range of temperatures to 1800° F., and if not used at temperatures above 1200° F., *can be removed, remixed and reused!* Dry coverage is unusually high... cost per sq. ft. is less than most insulating cements and blocks.

To guard Eagle Super "66" from outside damage, we recommend Eagle **INSULSEAL**... a tough, weather-proof coating that resists scuffs and bumps.

FREE Manual *Gives case examples of how industrial insulation effects large fuel savings. Includes Heat Loss Estimate Sheet for your use. Write for copy.*



EAGLE-PICHER INSULATIONS
High and Low Temperature

Made by THE EAGLE-PICHER COMPANY, Cincinnati (1), Ohio

Eagle Super "66" Insulating Cement • Eagle L-T and M-2 Felt • Eagle Supertemp Block Eagle Blankets • Eagle Pipe Covering • Eagle Insulseal • Eagle Loose Wool Eag'e Insulstic • Eagle Swetchek • Eagle Drycote

When inquiring specify CP A4234 — see handy form pages 2-3

PRODUCTION

Adhesive Backed Gaskets Easy to Press Onto Surface

No need to tie, lace or tape; furnished in rolls and slit rolls

Uses — This improved type of gasketing called "Chrome Lock" was introduced during the war to shipbuilding industry as a substitute for rubber and other critical gasketing materials. Now used for various commerical civilian applications.

Features — Among numerous advantages are: flame-resistance, fuel resistance, rust-inhibition, anti-wicking, lamination, non-oxidation, non-hygroscopic, compressibility, longer life, cushioning, ease of handling.

Description — The ease of handling is due in a measure to an adhesive back. This makes it unnecessary to tie, lace or tape the gasket onto vertical or inverted flanges. The "Chrome Lock" gasketing can be finger-pressed onto the surface and it will stay put. These adhesives back gaskets have a crinolin liner upon which the template may be laid and either scribed or marked with an ordinary lead pencil. Quantities of gaskets may be cut at one time and with the liner left in place, stacked in parts bins without danger of sticking together or collecting dirt and filings. "Chrome Lock" gasketing is supplied in four types: Nos. 8 and 16, without the adhesive back and 8A and 16A with the back. Packed both in rolls and slit rolls.

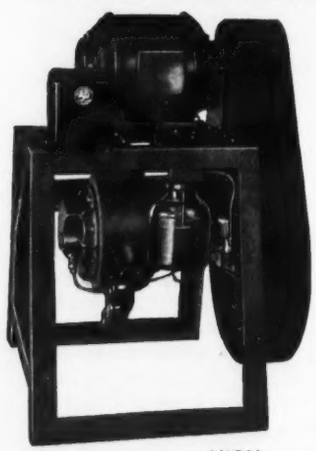
PRODUCTS RESEARCH CORP., Dept. CP, 634 S. Western Ave., Los Angeles, Cal.

When inquiring specify CP A4235 — see handy form pages 2-3

ROTARY LAMMERT QUIET

VACUUM PUMPS

VACUUM TO 0.02 M.M. BAR. 3-580 C.F.M.



Investigate!
MODEL SWMF.

NEW!
Continuous Self Purging Principle

Expels the Contaminating Influence!

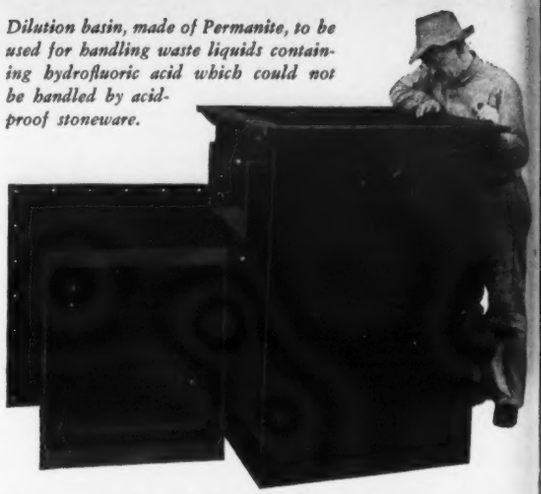
ENDURING HIGH VACUUM PERFORMANCE

LAMMERT & MANN CO.
215-21 N. WOOD ST. CHICAGO 12, ILL.

A HALF CENTURY OF SERVICE TO SCIENCE AND INDUSTRY

When inquiring specify CP A4236 — see handy form pages 2-3

Dilution basin, made of Permanite, to be used for handling waste liquids containing hydrofluoric acid which could not be handled by acid-proof stoneware.



Corrosion-Proof Permanite

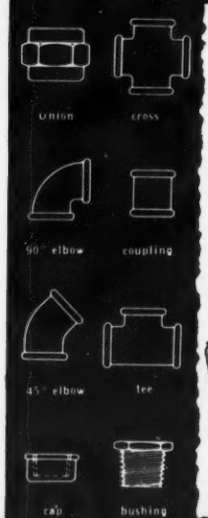
Resists all alkalies, most acids, including hydrofluoric, and solvents such as gasoline, alcohol, etc. May be bonded to other materials. Laminates of Permanite and woven glass fabric are strong and tough. May be cut, sawed, drilled and machined. Is ideal for special tanks, trays, sinks, filter press plates, tower covers, liquid distributors, grids, fume washers and flanges for nozzle and pipe connections. Is lightweight and can be used on top floors that might not stand heavier weights.

MAURICE A. KNIGHT
403 Kelly Ave., Akron, Ohio

When inquiring specify CP A4237 — see handy form pages 2-3

How to get quicker delivery of

STAINLESS PIPE FITTINGS



All types and sizes of fittings carried in stock

Don't delay production for lack of stainless steel pipe fittings. Allmetal carries one of the largest stocks in the country and can usually deliver what you need promptly. All pipe fittings are clean finished, made to close limits, and can be furnished not only of stainless, but of other non-corrosive materials, such as, monel, brass, bronze, everdur, etc. Our catalog lists all stock sizes. Write for a copy today on your company letterhead.

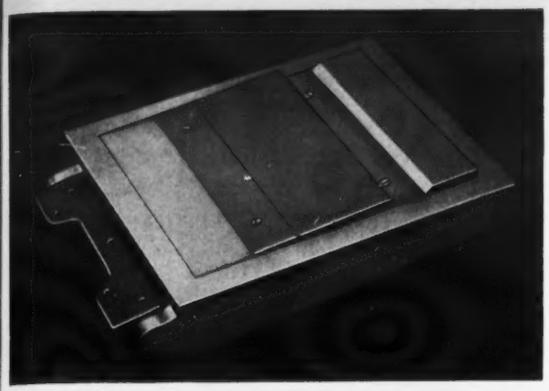
Send for FREE CATALOG



This new, 83-page catalog helps you select the correct size and type of non-corrosive fastening device for any particular job. Includes stock sizes, specials that can be made, engineering data, etc. Make request on company letterhead.

ALLMETAL SCREW PRODUCTS COMPANY
33 Greene St. New York 13

When inquiring specify CP A4238 — see handy form pages 2-3



NIAGARA PERMAFLUX spout type magnets are built of Alnico, the strongest magnetic alloy known. Their exclusive "double gap" construction with recessed surface insures effective removal of magnetic impurities from a wide variety of products. Because they require no electrical current and have no moving parts to wear out they furnish dependable and economical protection.

Write today for descriptive literature.

RICHMOND MFG. CO.
LOCKPORT, N. Y.

When inquiring specify CP A4239 — see handy form pages 2-3

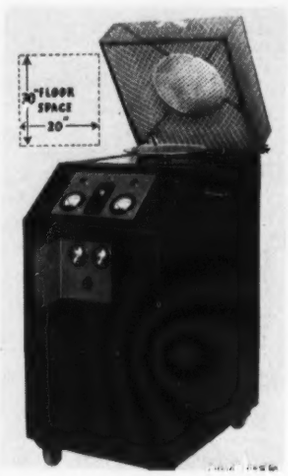


When inquiring specify CP A4240 — see handy form pages 2-3

PRODUCTION

High Frequency Unit

Heats 6 lbs. material to molding temperature in 1 minute



Heater — one control operation

Uses — This high frequency heating unit will heat six pounds of material to molding material in one minute.

Features — Like all models in this "Thermall" series, this one identified as the "Champ" has one control operation, dual safety interlock switches, electrical and mechanical. Preforms or powder fully visble at all times.

Description — The unit is 20" wide, 30" deep and 49" high. Weight 500 pounds. Automatic electric time control with intervals of from one to three minutes by seconds. Compounds requiring different time cycles may be heated simultaneously. Power tubes, 1 No. 2000T Eimac, Rectifier Tubes, 6 No. RX21 Eimac. Operates on 220W, 440 Volts, AC, three phase. Installed by simply connecting power line.

W. T. LA ROSE & ASSOCIATES, Dept. CP, Troy, N. Y.

When inquiring specify CP A4241 — see handy form pages 2-3

★

Deep & Shallow Well Pumps

Sixty styles of vertical and horizontal pumps are presented in a new bulletin just issued by major manufacturer. These include deep and shallow well pumps, "Hi-Lift" pumps and domestic water systems. The vertical turbine centrifugal pumps listed in the bulletin are made in a complete range of sizes and capacities from 15 to 30,000 gallons per minute. Bulletin B-136.

PEERLESS PUMP DIV. (Food Machinery Corp.), Dept. CP, 301 W. Avenue 26, Los Angeles 31, Cal.

When inquiring specify CP A4242 — see handy form pages 2-3

CASES, KEGS AND PACKAGES *can't walk*

but it's easy wheeling with a *WHEEL-EZY*



Cases, kegs and packages can't walk and you're wasting time, labor and money if you lug them about by hand. A Rapids-Standard *Wheel-Ezy* hand truck will give you *easy wheeling* with these bulky objects and will keep your handling costs low. Bottlers, brewers, distributors, super-markets and delivery men are finding increasing use for the Wheel-Ezy. There is a use for at least one in every plant. Strong, lightweight and perfectly balanced, Wheel-Ezy handles loads up to 500 pounds with ease. "Step-Climber" feature makes it possible to go up and down steps in easy fashion. Now available in one and two handled models, open or solid plate nose. Write for literature and price lists — no obligation.

CHOICE OF WHEELS AGH—Demountable Cushion rubber wheels . . . it's *tough*. MOCH—Moulded on Cushion Rubber Wheels, moulded to metal core. ABK—Plastic wheel with laminated fabric tread, moulded under heat and pressure. MRK—Resinoid Wheels made of sturdy canvas duck, macerated and moulded under heat and pressure. Plain or Roller Bearings. NICRO STEEL—Fine quality grain castings, fully machined. Oilite Bearings, zerk lubrication. GP—General Pneumatic with 10" x 3.50" demountable rubber tires.

OFFICES IN PRINCIPAL CITIES

Manufacturers of
STEEL FORGED CASTERS · TRUCKS · CONVEYORS · POWER BOOSTERS

The Rapids-Standard Co., Inc.

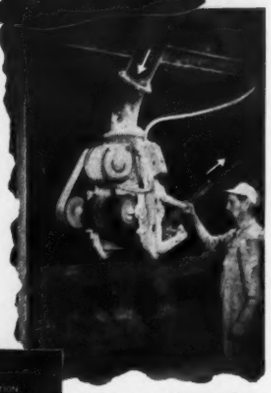
Sales Division—350 Peoples National Bank Bldg., Grand Rapids 2, Michigan

When inquiring specify CP A4243 — see handy form pages 2-3

FILL'EM FAST

with this new S-A
SWIVELOADER

Loading and trimming box cars is a fast, easy low-cost job with an S-A SWIVELOADER. The centrifugal thrower unit, swung into position inside car door, can be directed to any part of the car. Material discharges in steady stream . . . no hand trimming is required. This unit automatically loads and trims material up to 2" in lump size. One man operates it without entering car.





◆ *Left—Car diagram shows how SWIVELOADER loads material into ALL parts of car from doorway.*

• *Write for SWIVELOADER Bulletin No. 1044 or No. 240 on portable type loaders.*

STEPHENS-ADAMSON MFG. CO.

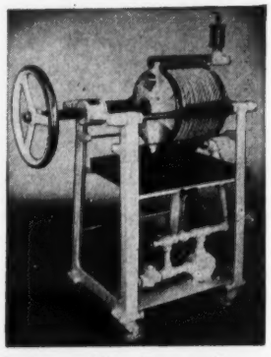
Tellevel-Bin Level Controls · Car Loaders · Car Pullers · Saco Speed Reducers · Winches
SealMaster Ball Bearings

11 RIDGEWAY AVE., AURORA, ILLINOIS

When inquiring specify CP A4244 — see handy form pages 2-3

THE ERTEL
MODEL EW
Asbestos Disk
Filter

CAPACITY FROM 5 TO 20 GPM



This Ertel filter, one of the many different models available for particular applications, will accommodate from six to fifty 12¼ inch Ertel Asbestos Filter Disks. Standard equipment includes silent operation pump and motor. Has manual by-pass pressure control. Can be used as portable unit or part of permanent installation. Ertel engineers will recommend the correct type and size for any particular requirement.

CATALOG { The fully illustrated Ertel Catalog-12 describes the complete line of Ertel Liquid Handling Equipment. Send for a copy today; no obligation of course.

ERTEL ENGINEERING CORPORATION
KINGSTON, NEW YORK
NEW YORK CITY SALES OFFICE AND SHOWROOM
50 WEST 44TH STREET, NEW YORK 36, N. Y.

LIQUID HANDLING EQUIPMENT ENGINEERS

When inquiring specify CP A4245 — see handy form pages 2-3

PRODUCTION

Magnetic Adjustable Speed-Drive

Operates boiler draft fans at reduced speeds



Model of Magnetic Speed Drive

Uses — For speed control of boiler draft fans, centrifugal pumps, blowers and compressors.

Features — Consisting of but two operating parts, a rotating ring and a rotating magnet, this magnetic drive is a compact, self-contained, electromagnetic torque transmitter used in combination with a constant-speed AC motor and an electronic controller to provide split-revolution speed control. It provides substantial power savings by operating boiler draft fans at reduced fan speeds for partial fan output, eliminating the need for damper or inlet vane control. Life of induced draft fans operating in erosive gases is greatly increased due to use of reduced speeds at partial fan outputs.

Description — Built in ratings approximately 25 HP and larger at 1800 — 600 rpm, the drive is available in several forms to meet the requirements of new and existing installations. It can be used in combination with synchronous motors to provide power factor correction.

ELECTRIC MACHINERY MFG. CO., Dept. CP, Minneapolis 13, Minn.

When inquiring specify CP A4246 — see handy form pages 2-3

★

Photocopy Exposure Slide Rule

Indicates time for five types of reproduction

Uses — Even though modern photocopying units are already easily handled an easy means of instantaneous calculation of exposure time is welcome for bringing added speed to photocopying operations as provided by this rule.

Description — Manufacturer of photocopying equipment is now making available to users of its equipment a simple exposure slide enabling the operator of a photocopying machine to calculate in an instant the proper exposure time for anything that is to be copied. The slide is made of varnished cardboard, measures approximately six inches long and three inches wide and holds a movable chart the figures of which appear through slots on the face of the rule. Exposure time is given for five types of reproduction: positive; and reflex, reverse, alternate and readable negative. These exposures apply to documents ranging all the way from original tracings on very thin paper to photographs, blueprints, etc. Literature on photocopy equipment and on this rule on request.

AMERICAN PHOTOCOPY EQUIPMENT CO., Dept. CP, 2849 N. Clark St., Chicago, Ill.

When inquiring specify CP A4247 — see handy form pages 2-3

CASE HISTORY No. 3

In a series of factual experiences of a group of American manufacturers with Multiwal Paper Bags.

COST COMPARISON

	100 lb. Osnaburg	100 lb. Paper Bags
Container Cost	.150	.068
Container Cost per 100 lbs.	.150	.068
Labor Cost	.014	.006
Total Cost per 100 lbs.	.164	.074
Savings per 100 lbs. Paper over Fabric		.090
Saving per ton Paper over Fabric		1.80

DETAILS OF LABOR COST

	Production per hour	Cost Per 100 lbs.
100 lbs. Osnaburg		
8 men filling		
6 men weighing, closing, and handling (average wage rate 60c per hour)	60,000 lbs.	.014
100 lb. Paper (6 valve bag Packers)		
6 men filling		
6 men handling (average wage rate 60c per hour)	120,000 lbs.	.006

CLASS OF PRODUCT PACKED

CEMENT	FERTILIZER
CHEMICALS ✓	FOOD
FEEDSTUFFS ✓	MISCELLANEOUS

PRODUCT CHARACTERISTICS

ABRASIVE ✓	GRANULAR ✓
CORROSIVE	HEAVY ✓
DELIQUESCENT	HYGROSCOPIC
FLUFFY	LIGHT
FREE-FLOWING ✓	VISCOUS

ST. REGIS BAG PACKAGING SYSTEMS are made in a variety of capacities, speed, and manpower requirements to suit specific products and plant layouts. Machines are available in types to meet the special characteristics of a wide range of products, with filling speeds as high as twenty-four 100-lb. bags per minute — with one operator.

A BRIGHT LIGHT AT A DARK MOMENT

Stone Mountain Grit Co., Lithonia, Ga., faced with heavy demand for grit to increase egg production, was bottle-necked by slow packaging and a severe shortage of osnaburg bags. With a packaging crew of 14 men, production averaged only 150 one hundred lb. bags per hour from each of 4 spouts — a total of 600 bags per hour. 6 St. Regis packers to fill multiwall paper bags were installed, and operated in pairs. With a crew of 12 instead of 14 men, production went up to 200 bags per hour per machine — a total of 1200 bags per hour . . . from 60,000 to 120,000 lbs. per hour.

Production Per Man Hour More Than Doubled
With the St. Regis system, 12 men packed 120,000 lbs. per hour, or 10,000 lbs. per man hour; equivalent to 130% increase of output per man hour, and easier and pleasanter jobs for the entire crew.

Container Costs More Than Halved
The hard-to-get osnaburg bags cost him $150 per thousand. Multiwall paper valve bags cost him $68.40 per thousand. His container costs were reduced by 54.6%.

Consumer Acceptance
Sift-proof paper valve bags assured dust-free, full weight containers which customers readily accepted in place of the former fabric containers.



(Left) A pair of the St. Regis packers in the Stone Mountain Grit Co. plant at Lithonia, Ga.

(Below) Sift-proof Multiwall paper bags are handled easily.





ST. REGIS SALES CORPORATION
(Sales Subsidiary of St. Regis Paper Company)

NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.
BALTIMORE 2: 2601 O'Sullivan Bldg. SAN FRANCISCO 4: 1 Montgomery St.

Mail this coupon for the complete story

Birmingham Boston Cleveland Dallas Denver
Detroit Franklin, Va. Los Angeles Nazareth, Pa.
New Orleans No. Kansas City, Mo. Ocala, Fla. Seattle Toledo

IN CANADA: St. Regis Paper Co. (Can.) Ltd., Montreal, Vancouver.

Without obligation, please send me full details regarding "Case History" No. 3, outlined above.

NAME_____

COMPANY_____

ADDRESS_____

When inquiring specify CP A4248 . . . see information request blank, pgs. 2-3

PRODUCTION

Mild Steel Single Shelf Half Is First Of New Metal Barrel Line

Smooth inner contour has transparent chip-proof, acid-alcohol resistant coating



15½ gal. aluminum finish barrel

Uses — This is the first production model of a line of metal barrels being developed by this organization.
Features — Major functional advantages include double thicknesses of 15 gauge steel at all points of stress or abrasion, and an empty weight of only 37 pounds. The smooth inner contour provides drainage to the last drop and both bung and tap are reinforced with arc-welded steel braces. Wide, flat stacking surfaces at top and bottom are reinforced with rolled steel hand grips for rapid safe handling. Interior finish is a transparent, check-proof, chip-proof, tasteless and odorless coating and the standard exterior finish is a high heat resistant aluminum, baked on.
Description — The capacity is 15½ gallons; plus or minus ½ pint. Weight is approximately 37 pounds. The steel is No. 15 (.0673) U.S.S. Gauge. Overall diameter 18⅜ inches; diameter at end 18⅝ inches; height 21 inches. Bulletin on request.

INGERSOLL STEEL DIV. (Borg-Warner Corp.), Dept. CP, 310 South Michigan Ave., Chicago 4, Ill.

When inquiring specify CP A4249 — see handy form pages 2-3

★

New Type Single Nickel Salts

Not a powder but small definite crystals of carefully controlled size; packed in 5 ply paper bags

Uses — These salts offer advantages in plating applications through the special process which makes it possible to produces single nickel salts as small definite crystals of carefully controlled size.
Features — Advantages include rapid solubility, as the small crystals provide a large surface area. When kept under reasonable storage conditions remain free-flowing; lumping and caking eliminated.
Description — The product is in the form of uniformly small crystals — not a powder, the uniformity of crystal size and shape being controlled by this maker's process. They possess high purity — high nickel content, the crystals ($NiSO_4$—$6H_2O$) make possible the use of strong five ply paper bags containing 100 pounds net. These bags are easy to handle, stacking conveniently and providing for a free flowing stream when pouring.

HARSHAW CHEMICAL CO., Dept. CP, 1945 E. 97 St., Cleveland, Ohio.

When inquiring specify CP A4250 — see handy form pages 2-3



Memo:

WHEREVER GRINDING EQUIPMENT IS USED IN THE CHEMICAL INDUSTRY, THE HARDINGE ELECTRIC EAR* CAN SAVE TIME AND MONEY . . .

*Reg. U. S. Pat. Off.

HARDINGE

COMPANY, INCORPORATED • YORK, PENN.

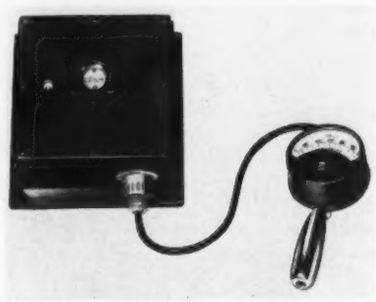
NEW YORK 17—122 E. 42nd St • 205 W Wacker Drive—CHICAGO 6

SAN FRANCISCO 5—501 Howard St. • 200 Bay St.—TORONTO 1

When inquiring specify CP A4251 — see handy form pages 2-3

Portable Pyrometers For Use Under Severe Conditions

Available with rigid handle or with cable; choice of several scale ranges



Pyrometer with cable connected to switch case by "twist-lock" connector

Uses — This portable pyrometer is readily adaptable to a wide range of requirements where severe operating conditions are involved.

Features — The undesirable effects on pyrometer performance that would result from excessive vibration, dust and dirt, fumes, lack of space and similar conditions that would be encountered if the instrument were continuously subjected to these conditions are avoided.

Description — A special combination of portable "Alnor" pyrometer and thermocouples permanently installed in the heat zones provides dependable temperature measurement readings under severe operating conditions where a permanently installed instrument would be inadvisable. With this "Alnor" type of installation the portable pyrometer is

Highest Filtering Efficiency is attained with "HORIZONTAL PLATE" FILTERS



Especially adapted for chemicals and all liquids where quality of product is vital.

You obtain superior filtering results because Sparkler Filters with the Horizontal Plates are designed to provide —

CAKE STABILITY **during blow-down and wash-through with solvents.**

PRESSURE-TIGHT FILTRATION **— no evaporation or leakage of liquid.**

MICROSCOPIC FILTRATION **by means of filter aids: diatomaceous earth, activated carbon, fibrous asbestos, etc.**

POSITIVE SUPPORT FOR FILTER MEDIA: **paper, plastic or glass cloth, cotton or woolen cloth, metal cloth, asbestos pads, germ-proof pads, etc.**

Write for any specific information and filtration survey service.

SPARKLER MFG. CO.

242 Lake Street

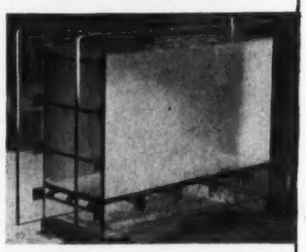
MUNDELEIN ILLINOIS

SPARKLER HORIZONTAL PLATE FILTERS

When inquiring specify CP A4254 — see handy form pages 2-3

GLASS TANKS

FOR YOUR JOB



DURABLE — Glass Tanks are impervious to acids, alkalis, nearly all liquids—even hot chromic acid. Nonporous, non absorptive. Won't contaminate their contents. Made of specially tempered glass for strength. Can withstand sudden temperature changes. **MANY TYPES AND SIZES**—Faced with glass, inside and out; with inner facing only; transparent; colored, opaque Carrara Structural Glass.

Send the coupon for complete information

GLASS TANKS BY "PITTSBURGH"

Pittsburgh Plate Glass Company
2073-6 Grant Building, Pittsburgh 19, Pa.

Please send me, without obligation, free literature on Glass Tanks by "Pittsburgh."

Name.....

Address.....

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PPG

PITTSBURGH PLATE GLASS COMPANY

When inquiring specify CP A4252 — see handy form pages 2-3

A DIELECTRIC FLEXIBLE COUPLING

» Protect Operators and Equipment

With The TOBIN BRONZE L-R Sparkless FLEXIBLE COUPLING

DIELECTRIC — Will Not Spark

Simplest, 3-part construction, with insulating cushioning spider and dependable Tobin Bronze bodies. Where explosives and inflammable gases, vapors and liquids are handled, add this protection to L-R correction between drive and driven machines for misalignment, takeup of vibration, starting torque, etc. Write for complete catalog of couplings up to 2500 H.P. duties.

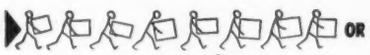


L-R Type "A" 1/6 to 50 H.P. Pat. and Pats. Pending.

LOVEJOY FLEXIBLE COUPLING COMPANY

5072 WEST LAKE ST. CHICAGO 44, ILL.

When inquiring specify CP A4253 — see handy form pages 2-3

THIS  OR THIS 



Generalift PALLETS

★ ★ ★ ★ ★

● The U. S. Navy reports savings of 50% to 90% in materials handling through the use of pallets and fork lift trucks. Instead of moving them piece by piece—many items can be consolidated into single loads—palletized—moved as one.

Result: one workman and fork lift truck do the work of many . . . reduce handling costs, save time and packaging materials . . . protect shipments from damage . . . simplify warehousing and taking of inventory. Write today for more details.

ECONOMIZE . . . PALLETIZE . . . GENERALIZE!

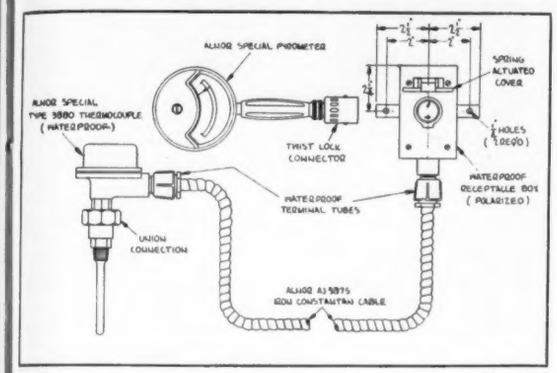
GENERAL BOX COMPANY

GENERAL OFFICES 522 N. Dearborn St., Chicago 10, Illinois

DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon. Continental Box Company, Inc.: Houston, Dallas.

When inquiring specify CP A4255 — see handy form pages 2-3

not subjected to the adverse influences except at relatively short intervals as periodic temperature readings are taken. The "Alnor" portable pyrometer is a portable hand held instrument, available in a choice of several scale ranges, and equipped with a bayonet type attachment plug at the end of the handle. The operator plugs the pyrometer into the receptacle box, which is connected permanently to the thermocouple. Another type of installation with several thermocouples in heat zones can be wired to an "Alnor" type T selector switch, allowing readings to be taken from successive locations by turning the switch knob. The



Single thermocouple installation — pyrometer with rigid handle plugs into receptacle

"Alnor" portable pyrometer is plugged into the switch case receptacle. This new pyrometed equipment is especially adaptable to portable engine installations — diesel engines — and many uses in industrial plants where conditions are severe. The illustrations accompanying this article show typical applications. The photo shows "Alnor" portable pyrometer plugged into the receptacle in the switch case. (The pyrometer with rigid handle can, of course, be used with this switch.) The drawing shows an arrangement with a permanently wired single thermocouple where temperatures are to be taken at one point only. Complete details on these "Alnor" pyrometers and accessories on request.

ILLINOIS TESTING LABORATORIES, INC., Dept. CP, 420 N. La Salle St., Chicago 10, Ill.

When inquiring specify CP A4256 — see handy form pages 2-3

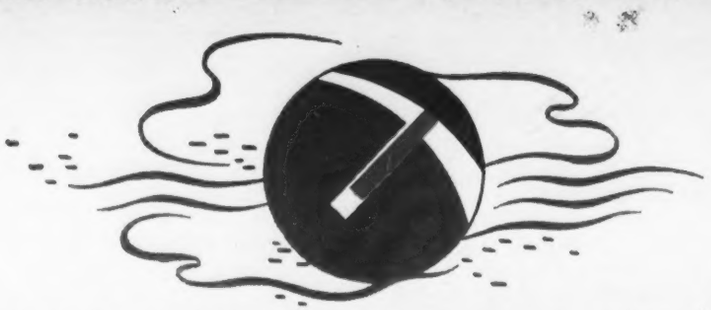
★

Steel Barrels, Kegs And Half Barrels

Those requiring steel shop foundry barrels, attachments and trucks for handling them will find items of interest in a new six page illustrated folder. A range of barrel sizes are tabulated and include full size barrels in 12, 14, 16 gauge, diameter 18″, height 30″. Kegs and half barrels are also offered. In these barrels maximum strength of the steel is secured by the hem around the top and bottom edges. The shell and reinforcing folds being integral, maximum strength and rigidity is placed where it is most needed. The hem is lapped at the joint and secured by two rivets, making the top reinforcing continuous. Another feature of the construction is that the edges are all smooth. Wire top barrels and extra heavy duty barrels are also shown. Copies of this bulletin on request.

CLEVELAND WIRE SPRING CO., (Steel Factory Equipment Div.) Dept. CP, 2102 W. 25th St., Cleveland, Ohio.

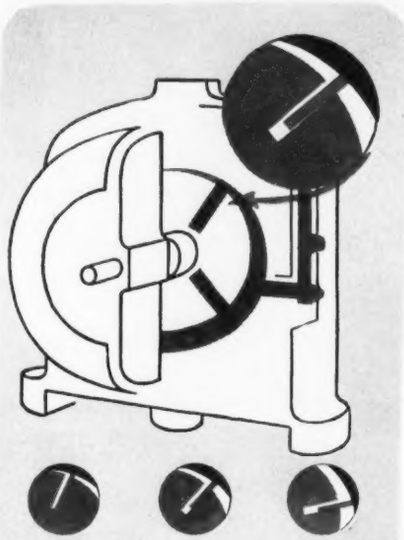
When inquiring specify CP A4257 — see handy form pages 2-3



The LITTLE PARTS That ARE NOT THERE

. . . in Gast Vacuum Pumps (to 28 Ins.), Compressors (to 30 lbs.) and Air Motors (to 1 h.p.)

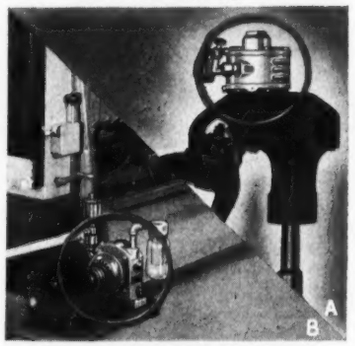
Here is mechanical design that does not go around the block in order to step next-door. In Gast design the very conditions inherent in operation are themselves utilized in accomplishing the desired result—all without recourse to springs, valves, guides, rings, supports or other means-to-assist-means. Can anybody imagine anything simpler than a one-piece slotted rotor with one-piece vanes that slide outward against the cylinder walls—and seat themselves perfectly, and take up their own insignificant wear—*because centrifugal force won't let them do anything else?*



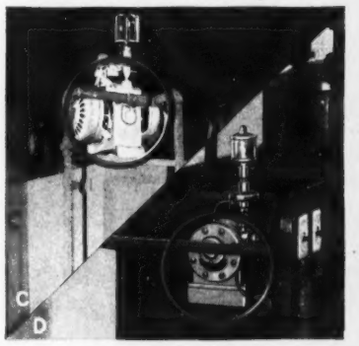
Vanes: Self-seating . . self-adjusting . . springless. Centrifugal force holds them against cylinder wall. They "work without works". . . Continuous, non-pulsating flow. . . More air per pound of weight, more air per horsepower. . . Forced-air cooling: long life, oil economy, no hot-oil odor . . . Automatic shaft seal: no packing, no leaking, no adjusting.

That's Gast design. That's why Gasts deliver more air per pound and per horsepower. That's why Gasts work so dependably with so little attention. That's why Gast manufacturing can be the very finest, despite an attractive first cost. And that's why you should avail yourself of Gast experience, in applying Gasts wherever air is used or can be used to better advantage, to your greater profit and your customers' greater satisfaction.

GAST MFG. CORP.
101 Hinkley Street,
Benton Harbor, Michigan



A—On a "Lightnin'" Mixer.
B—On a Litho Equipt. & Supp. Co. Camera.



C—On Aircraft Test Equipment.
D—On a Houde Sump Filter.

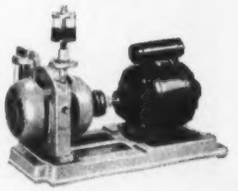
GAST ROTARY

VACUUM PUMPS · AIR COMPRESSORS · AIR MOTORS



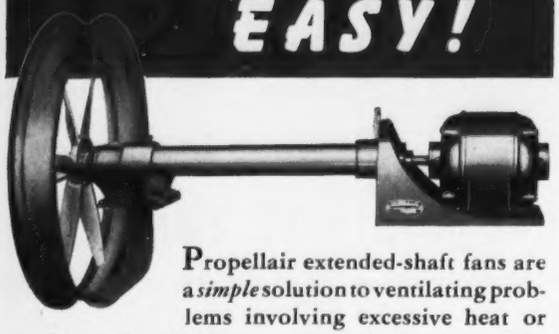
ENGINEERING TEST OFFER—*So You Can SEE IF YOU'RE MISSING SOMETHING!* Simply write our Engineering Department and explain the operation you think air might handle, or describe the job air is already doing for you. Our Engineering Department will study your problem, select or design a Gast unit to do the specified work at less cost or at greater efficiency or both. Then, **without cost** or obligation, the recommended unit will be shipped to you for your performance tests.

GET THIS IDEA-CATALOG
It not only tells how Gasts are built and all about them, but suggests uses that may not have occurred to you. Write for it; no charge or obligation!



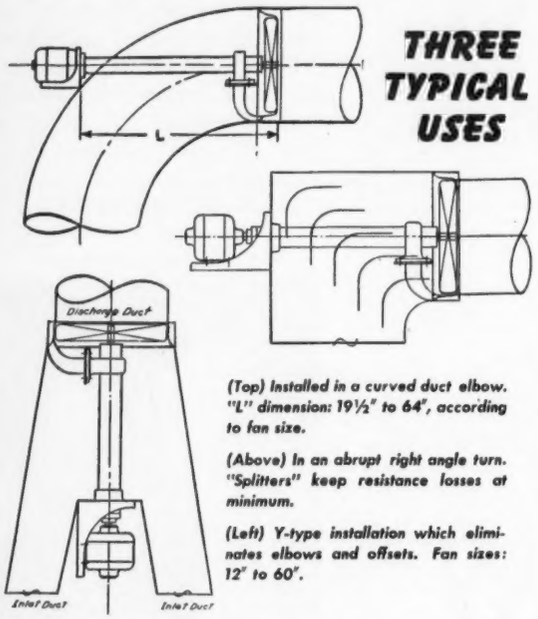
When inquiring specify CP A4258 . . . see information request blank, pgs. 2-3

MAKES MANY TOUGH JOBS EASY!



Propellair extended-shaft fans are a *simple* solution to ventilating problems involving excessive heat or moisture, harmful fumes, and explosive gases. The motor is located outside the air stream, *away* from injurious elements.

Propellers are airfoil sections—*high* in efficiency and mechanical strength; non-overloading. Bearings and drive shaft are well protected. Capacities to 68,000 c.f.m.



THREE TYPICAL USES

(Top) Installed in a curved duct elbow. "L" dimension: 19½" to 64", according to fan size.

(Above) In an abrupt right angle turn. "Splitters" keep resistance losses at minimum.

(Left) Y-type installation which eliminates elbows and offsets. Fan sizes: 12" to 60".

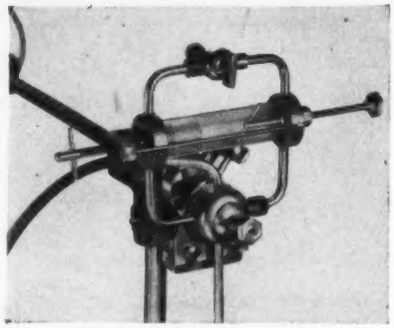
Get *all* the facts on this and other Propellairs for efficient industrial ventilation. Propellair airfoil fans deliver *most* air from *least* horsepower; use *both* blade surfaces to create air movement. Flow is uniform over *whole* fan area for high volume, high velocity output. Types for ducts, walls, windows, floors, roofs. Let us study your ventilating problems and submit recommendations. Write today.

PROPELLAIR INC
"Moving Air Is Our Business"
SPRINGFIELD • OHIO

When inquiring specify CP A4259 — see handy form pages 2-3

Filling Machine For Vials and Ampoules; Capacities 2-100 CC's

For high speed, precise, asceptic filling operations; all metals coming in contact with solutions made only of pure nickel



Filling machine cylinder, regulating screw, control valve, outlet, inlet tubes

Uses — This filling machine is actually an automatic pipetting machine designed for production work. It is ideally adapted to the requirements of organizations requiring asceptic production filling equipment. A typical application of these units is in the plant of manufacturer of hypodermic medications in which 20 vials a minute are filled in a simple and easy operation.

Features — No exposed parts to contaminate the liquid; all metals coming in contact with solutions made only of pure nickel; simple design; no working parts to get

WHEN BETTER METALS ARE MADE — GROEN WILL USE THEM



CHEMICAL PLANTS!

WRITE US ABOUT THIS KETTLE

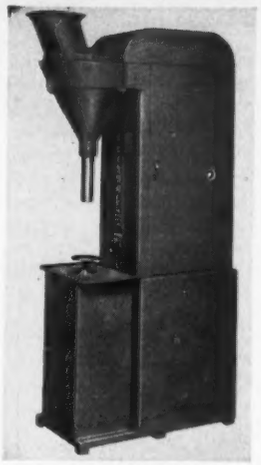
• It has everything a Tilting Kettle can have for better chemical processing. It's the famous GROEN Stainless Steel Steam Jacketed TILTING KETTLE . . . so widely popular with Chemical Plants, Drug Makers, Food Packers, etc. Equipped with single motion motor driven agitator. Easily operated, fully controllable worm gear tilting mechanism. Quick-heating super-jacket, non-scorching in performance. A great unit. Get details.

THERE'S A TYPE FOR EVERY NEED
. . . standard or built to suit special requirements. Tell us your problem

GROEN MFG. CO.
4535 W. Armitage Ave., Chicago 39, Ill.

GROEN WORLD'S LARGEST PRODUCERS OF STAINLESS STEEL STEAM JACKETED KETTLES

When inquiring specify CP A4260 — see handy form pages 2-3



15 to 25% faster!

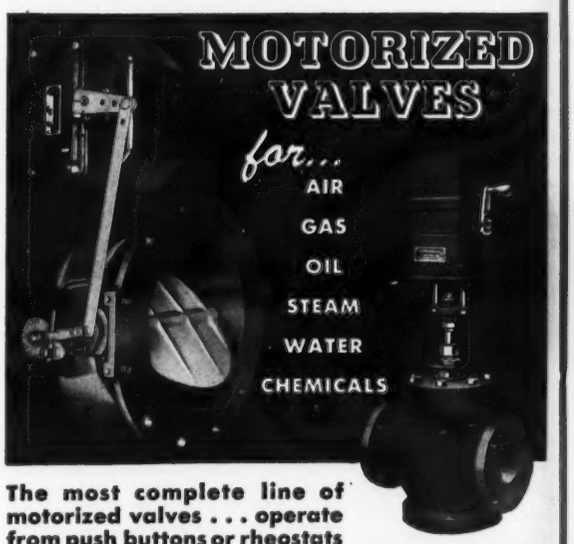
Package Powders

With this NEW TRIANGLE Automatic Feed AUGER PACKER.

This Triangle Model U-1 Auger Packer feeds the material automatically instead of by foot lever control, thereby reducing operator fatigue and increasing production from 15 to 25% over previous models. This new, streamlined unit is used for filling all kinds of powders — from several ounces up to five pounds into cans, bags, cartons or jars. Production of one operator on 1 lb. packages is 30 or more per minute. Fast, accurate, easy to use, this new Model U-1 puts pep into powder packaging, pays for itself in increased production. Write for circular which gives full details.

TRIANGLE PACKAGE MACHINERY CO.
917 NO. SPAULDING AVENUE, CHICAGO
BRANCHES IN PRINCIPAL CITIES

When inquiring specify CP A4261 — see handy form pages 2-3



The most complete line of motorized valves . . . operate from push buttons or rheostats for remote positioning . . . or automatically from thermostats and other measuring instruments. Standard types for On-Off, Throttling or Proportioning control. Splash-proof, weather-proof, dust-tight, explosion-proof designs available. Write for free Catalog A2 today.

atc AUTOMATIC TEMPERATURE CONTROL CO., Inc.
Logan St. & Germantown Ave. • Philadelphia 44, Pa.

When inquiring specify CP A4262 — see handy form pages 2-3

out of order; no adjustments. Machine is easily removed from stand and sterilized as a unit. The machine accurately delivers under steady production without resetting. One of the most distinctive features of this machine is that it works on a positive pressure system — this delivers at all times under pressure, thereby eliminating the possibility of variation in delivery.

Description — The "Gemware" filling machines are made in 5 cc., 25 cc., 60 cc., and 100 cc. capacities. They are adjusted from any capacity from 2 cc. up to 100 cc. By using more than one stroke, operator may fill to a greater capacity than the maximum specified for each machine. It is foot treadle operated. (One movement of treadle both fills and empties cylinder.) While the machine will operate on gravity feed it is recommended that air or gas pressure be employed to permit maximum possible production. A four way valve in the filling head is operated by shaft connected to a machine pulley and the treadle. The piston travels back and forth in a reciprocating movement. Pressure of the incoming liquid pushes piston to the opposite end of the liquid already in the cylinder if forced out by the pressure of the piston. The cylinder both fills and empties from either cylinder head. Liquid is forced out in operations described and through outlet tube. The adjustment for filling capacity is controlled by the regulating screw which extends into the glass cylinder. This controls the stroke of the piston and once the screw is set no further adjustments are necessary.

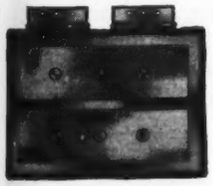
G. M. MFG. CO., Dept. CP, 50 W. 3rd St., New York 12, N. Y.

When inquiring specify CP A4263 — see handy form pages 2-3

★

Magnetic Separator Has Working Surface of Stainless Steel

Compact, non electric unit can be used in dry or liquid materials



Separator with insulating strips of stainless steel

Uses — Removal of large and small pieces of iron and steel trash from ingredients going into the manuafcture of chemical products, drugs, cosmetics, ceramics, oils, soaps, paper, etc.

Features — This powerful, compact, non-electric magnetic separator has working surface made entirely of stainless steel. It can be used in liquid or moist materials as well as dry. It will not contaminate food stuffs.

Description — Illustration shows the edge strips and center insulating strip in non-magnetic stainless steel to prevent strength of the unit from magnetizing the steel on which it is mounted. The two pulling areas on each side of the center insulating strip are made of magnetic stainless steel. These units have been in use for some months in various types of plants. Installed, for example, at any point where raw materials may enter a chute or conveyor, the magnetic separator will attract and hold magnetic foreign bodies and thus protecting pulverizing or reducing machinery. Installation may also be in the bottom of a steel trough, pipe line or liquid feeding equipment.

ERIEZ MANUFACTURING CO., Dept. CP, Erie, Pa.

When inquiring specify CP A4264 — see handy form pages 2-3



A Simplified SK Strainer . . .

designed to give you more for your money

Here is a duplex strainer which does a thorough job of removing dirt and other foreign matter from oil, water and other liquids, *yet is moderately priced.* Design simplifications, standardization and construction economies all contribute to making this new strainer outstanding in many ways.

Check These Features:

DUPLEX DESIGN—
permits each strainer to be cleaned without flow interruption.

ONLY 1 VALVE—
single shut off cock with double-port provides continuous flow during switch-over and is pressure balanced for easy operation. Steel spring takes up any plug wear and insures against leakage.

VERTICAL BASKETS—
allow continuous flow while cleaning. Dirt is collected in the basket which is easily removed without loss of fluid. Strainer free area is a minimum of 5 times pipe area.

SINGLE-SETSCREW CLAMPS—
quickly removable, yet seal basket chambers tightly.

PACKING GLANDS—
nut-and-stud type, easy to adjust and will not corrode and "freeze."

PLUG DRAINS—
on basket chambers for draining fluid from unit.

Made of cast bronze, these SK Duplex Strainers are designed for pressures up to 125 psi, in pipe sizes from ½ to 2 inches. Being light-weight, they need no support other than the pipe line.

Other SK Strainers are made in cast iron for pressures up to 250 psi or steel for pressures up to 600 psi and sizes up to 6 inches.

JET APPARATUS • CONDENSERS AND VACUUM PUMPS • HEAT TRANSFER EQUIPMENT
VALVES • ROTAMETERS • FLOW INDICATORS • GEAR PUMPS • STRAINERS
OIL BURNING EQUIPMENT • SPRAY NOZZLES AND ATOMIZERS • RADIAFIN TUBES

SCHUTTE & KOERTING CO.
Manufacturing Engineers
1173 Thompson St., Philadelphia 22, Pa.

When inquiring specify CP A4265 . . . see information request blank, pgs. 2-3

PRODUCTION

9% Nickel Steel Now Available in Tubing

Substitute for stainless steel

Uses — Among problems in various types of processing plants involving tubing are those concerning sub-zero temperatures, as in handling liquified gases and other low temperature fluids. In these and other instances a substitute for stainless steel may be desired. Other typical cases involve oil refineries and chemical plants, oil pump installations where pump tubing must be subjected to salt water and hydrogen sulphide in oil fluid, presenting a problem. A nine percent nickel steel is now available and among its newest applications is its use in the form of tubing.

Description — This new nickel steel tubing exhibits good physical properties even at temperatures as low as minus 300 degrees F (minus 196°C.). This new product may be applied in low temperature work as a substitute for stainless steel tubing. Among the applications in which it will find use is in tubes for black liquor evaporation (in the preparation of waste black liquor for burning in the Kraft paper industry). Also for caustic solution evaporation and for alkaline-phenol solution work. The new nine percent nickel steel tubing is capable of giving Charpy impact values as high as 25 foot pounds, even at minus 320°F. temperature. It offers resistance to attack by alkaline media and to low temperature embrittlement to a greater degree than other nickel alloy tubing produced by this company. Development work in connection with the piercing, rolling and drawing of the new alloy steel has been satisfactorily completed. Finished normalized tubing shows very satisfactory physical properties and withstands the usual deformation tests on flattening, flanging and crushing. Minimum tensile properties of the tubing are specified as follows: ultimate strength 80,000 psi; yield strength 50,000 psi and elongation 20% in two inches. The use of electric furnace steel only is recommended with nickel content ranging from 8 to 10% and carbon held to 0.12% maximum. The steel should be of a fine grained type irrespective of end use.

THE BABCOCK & WILCOX CO., Dept. CP, 85 Liberty St., New York, N. Y.

—see handy form pages 2-3
When inquiring specify CP A4266

It's READCO for



Dependability and individual design to give you the processing results and efficient operation you need . . . are your assurances with READCO. Our shop and engineering specialists are available *now* to fill your requirements—whether for non-ferrous metals, carbon, special alloy, solid or clad steel, welded or cast.

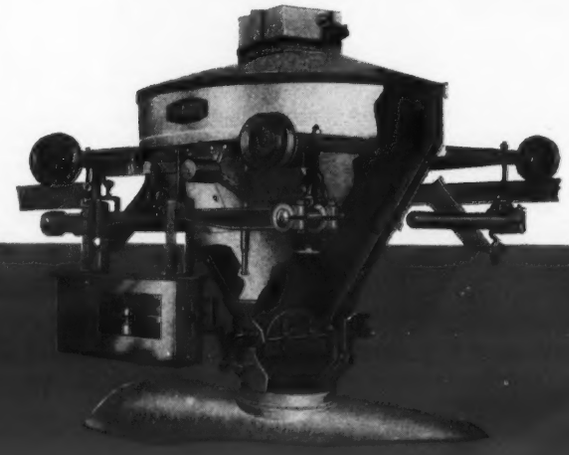
BLENDING . . .

SIFTER-BLENDERS . . . This combination in one machine assures dust-tight operation, avoids loss of material and requires only one operator. Sifter, at charging end, acts both as a scalping screen and aerator. Built of any commercial alloy in a variety of sizes.

PILOT PLANT BLENDERS . . . Double ribbon type with welded agitator, driven by means of gear-head motor. Central discharge through flush plug gate. Built of stainless steel or any commercial alloy in working capacities of 1/8, 1, 2 and 3 cubic feet.

MATERIAL HANDLING . . .

Equipment for straight line handling from storehouse to point of manufacture is engineered to suit all plant layouts and built by READCO in any capacity desired. Bucket and screw type elevators, screw conveyors, dump or blending bins, storage bins, dustless automatic weigh hoppers (illustrated below), vibrating sifters or rotary screen sifters . . . all are designed to assure perfect, coordinated movement of powdered and granular material.

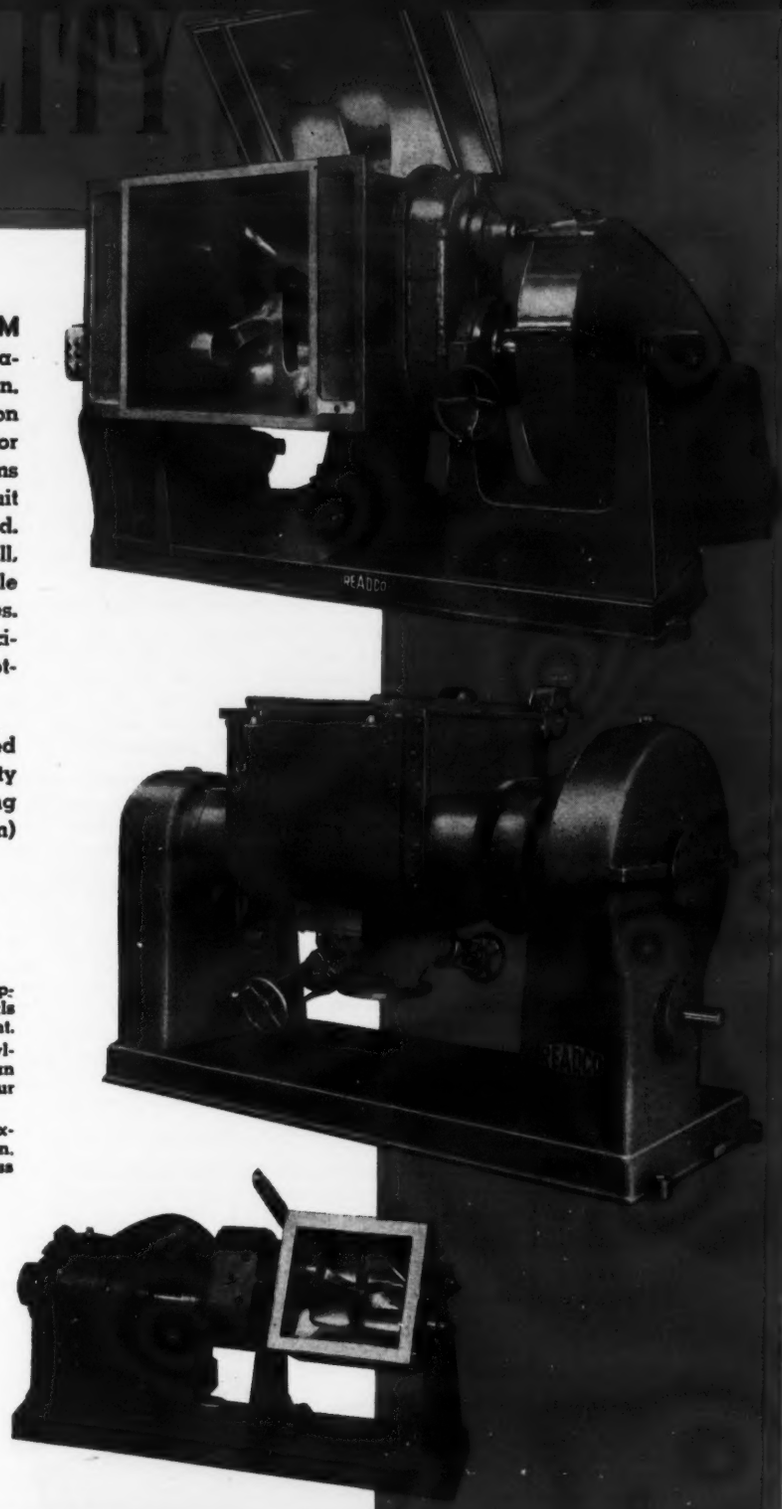


Mixing - Blending
Material Handling

MIXING . . .

SINGLE PACKING GLAND DOUBLE ARM VACUUM MIXERS . . . Contamination or oxidization is eliminated by single packing gland construction. Split seals, an exclusive READCO feature, mounted on the arm shafts at the bowl ends, are easily removed for cleaning. Overlapping or tangential action mixing arms eliminate dead spots. Arm speeds are provided to suit requirements, multi-speed or variable speed if desired. Temperature control is arranged for by means of full, partial or divided jackets on the bowl. The adjustable cover is mounted to provide perfect sealing at all times. Built in a range of sizes from 2½ to 1,200 gallon capacities with tilting bowl discharge (top illustration) or bottom discharge (center illustration).

LABORATORY MIXERS . . . Easily dismantled for quick cleaning to eliminate contamination. Variety of mixing arms are interchangeable. Built in working capacities of 1, 3 and 6 quarts. (Illustrated on bottom)



READCO ENGINEERING SERVICE and EQUIPMENT

1. **LABORATORY FACILITIES . . .** are maintained for the development of new ideas . . . for the testing of customers' materials . . . for the continuous improvement of READCO equipment.
2. **SKILLED ENGINEERING STAFFS . . .** with practical knowledge and engineering "know how" are better prepared than ever before to assist you in planning and building your process equipment.
3. **MODERN MANUFACTURING FACILITIES . . .** have been expanded to fulfill the exacting demands of modern production. These facilities will provide you with better chemical process equipment.
4. **SALES PERSONNEL . . .** are anxious to be of service to you far beyond the effort of merely selling equipment.
5. **PRACTICAL FIELD SERVICE STAFF . . .** is factory trained and experienced to supervise erection and service of READCO equipment.
6. **EFFICIENT MANAGEMENT . . .** stands behind the guarantee of performance on every piece of READCO equipment.

These exceptional facilities, plus the accumulated "know-how" of thirty-eight years including the experience of the war emergency, enable READCO to offer you many new improvements in chemical process equipment . . . sound reasons why you should plan now to consult with READCO engineers. Write READCO today for a complete new chemical and industrial processing equipment catalog.

READ



MACHINERY CO., Inc.

YORK PENNSYLVANIA

PRODUCTION

Industrial Logistics-Handling Materials and Products

One of the simplest, most effective methods for handling materials and manufactured products economically and safely is outlined in "Industrial Logistics", a twelve-page, illustrated booklet recently issued. Subtitled "A Survey for Management", the booklet explains how a planned system of materials transportation reduces costs in procurement, production and distribution of goods. Outstanding examples of economics are cited, such as a reduction of $20.65 per car in unloading sheet metal, $41.00 per car in unloading bagged materials; a saving of $64.00 a day through utilizing full warehouse capacity. Industrial Logistics is said to effect savings through using the correct type of containers, such as boxes, barrels, bags and bales; assembling standardized sizes of the individual containers in Master Unit Loads on pallets or skids and then transporting them by means of power industrial trucks. Instead of handling a few pounds at a time, manually, the principle is to handle many pounds, or tons, mechanically at one time. According to the booklet all containers in which materials and products generally are shipped can be catalogued in the four basic types. Even products requiring no outer protection can be included in one of the classifications, as for example, large rolls of paper are similar in some respects to barrels. Boxes, barrels, bags and bales, therefore, are common denominators in every division of industry; all can be built into Master Unit Loads, to be transported anywhere on pallets or skids.

The booklet emphasizes the fact that handling operations can greatly increase costs of an article but also offer great opportunities for effecting economies.

Copies of any or all of these booklets may be obtained on request.

THE ELWELL-PARKER ELECTRIC CO., Dept. CP, 4205 St. Claire Ave., Cleveland, Ohio.

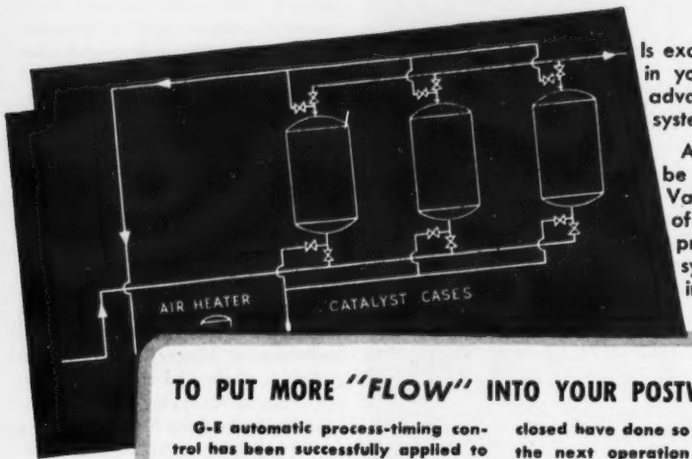
When inquiring specify CP A4267 — see handy form pages 2-3

For more information on product at left, specify CP A4268 . . . see information request blank between pages 2-3.

AS MANY AS 900 OPERATIONS...

Automatically Timed with a

G-E PROCESS CONTROL SYSTEM



Is exact timing of successive operations a vital factor in your process? Then you should know about the advantages of a G-E automatic process-timing system.

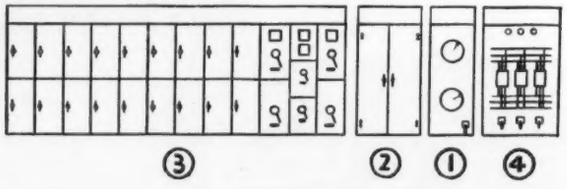
Anywhere up to 900 "on"-"off" operations can be timed in any sequence or cycle you desire. Valves, pumps, blowers, and processing machinery of all types operate at the right time and in the proper sequence. Moreover, the entire control system is so centralized that you waste no time in making observations or adjustments.

TO PUT MORE "FLOW" INTO YOUR POSTWAR CHARTS

G-E automatic process-timing control has been successfully applied to many processes, such as the catalytic petroleum-cracking process diagrammed above. It maintains automatic control over complex operations in three ways. First, it opens valves or similar process devices at preset intervals. Second, it makes sure that valves which should have opened or closed have done so before it allows the next operation to take place. Third, it automatically rings an alarm and shuts down the timer if the preceding control operation has not been successfully completed. In other words, this G-E process-timing system helps to make your process more automatic and to flow more smoothly.

General Electric realizes that there are many chemical processes where automatic process-timing could improve product quality, reduce waste, and speed production. Is yours such a process? Why not discuss the advantages, as they apply to your process on an over-all functional basis, with a G-E sales engineer? *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

Automatic Process-timing System



A typical G-E automatic process-timing control system consists of (1) a master sequence timer; (2) a group of interlocks and relays to prevent false operation; (3) a Cabinetrol unit to house individual valve motor controls; (4) an operator's control board which provides a "picture" of the process at any one time. Complete details are in Bulletin GEA-4181.

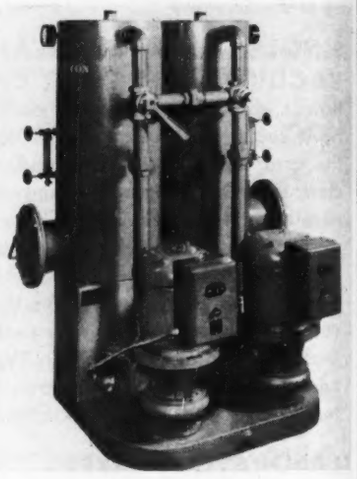
ELECTRIC CONTROL FOR CHEMICAL PLANTS

GENERAL ELECTRIC

—When inquiring specify CP A4269 . . . see information request blank, pgs. 2-3—

Vacuum Process Pumps Utilize Water Jet Principle

Maintain delivery of 28" Vacuum through long periods of service; no close clearances



Vacuum pump with twin interceptor tanks

Uses — The advance in modern industrial vacuum processing and its ever widening scope place increasing demands upon sub-atmospheric equipment. Following are some of the important points to be considered in the selection of vacuum equipment: Close clearances; time out for service and adjustments; loss of efficiency with age; ability to handle abrasives in the air stream; amount of water consumed; corrosion resistance for the particular application. The Water Jet Vacuum Process Pump described in this article overcomes many of the problems enumerated above.

Description — This pump provides 28" Hg. vacuum when new and years later will still be providing the original vacuum. As there are no close clearances involved, time out for service and adjustments is practically eliminated, and there is *no loss of efficiency with age.* This pump requires no sealing water or other liquid seal, and only sufficient cooling water to maintain the temperature of the circulating medium. Fabricated construction permits use of the metal which most effectively resists corrosion for the particular application. Various modifications permit different types and special features which result in pumps "tailor made" for the job.

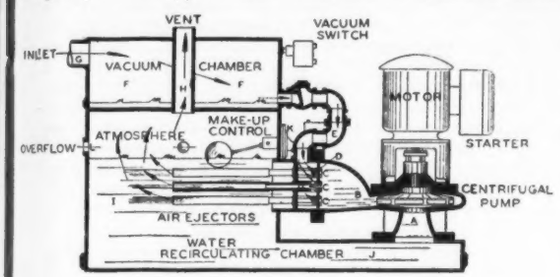
Operation — See sectional view which shows one of the popular types. The impeller of the centrifugal pump takes water at (A), discharges it (B) under pressure at high velocity through brass nozzles (C). Venturi throats induce a flow of air through ports (D) from suction pipe (E) creating vacuum in upper chamber (F). Air then rushes in through inlet (G). The air induced into the lower tank at (D) passes through submerged jets and is vented to atmosphere at (H). The water is recirculated through lower tank (1) and extension (J) then up to pump to repeat the cycle. In the heating field many similar units have been operating continously for fifteen years with no loss of efficiency. Every pump must stand 28" vacuum shut-off test before being shipped.

Types — The upper tank shown in the *sectional view* is a volume chamber in which a reserve vacuum is maintained automatically, according to the setting of the vacuum switch.

Water recirculating chamber, pump and motor, — *the vacuum creating unit,* — except for size, is the same on all types. Sometimes when clean air, either moist or dry, constitutes the air stream, no vacuum receiver or upper chamber is required. The inlet is then directly connected to the suction pipe (E).

The Pump *pictured* was developed for the manufacture of rubber inner tubes. When the tube is extruded in continuous length a cloud of air is forced into it, keeping it slightly inflated and covered with soapstone to prevent sticking. On the opposite side, the vacuum pump draws off the surplus air and *abrasive* soapstone. The air stream is introduced beneath the surface of water in one of the twin interceptor tanks where the soapstone is trapped and held in suspension through continual gurgitation. At the end of a shift, the operator switches the vacuum to the second interceptor tank and drains the water and soapstone from the first tank.

Another type incorporates a jet condenser, built right into the pump. This type is ideal where the air stream includes



Sectional view — vacuum creating unit

steam. Water at city pressure is introduced into a "third story" and is forced through non-clog nozzles setting up a water curtain in the vacuum chamber which now becomes also a condensing chamber. The spray water, the condensate and the non-condensables are all drawn through the suction pipe and port holes into the lower chamber. As the level rises, the water overflows to sewer. The spray water supply is automatically controlled. This unit is recommended for food industries, vacuum pans in the dairy industry, and for the chemical, plastic and pharmaceutical industries.

Various sub-atmospheric problems may be submitted to the manufacturer for recommendation as to type and size of vacuum pump best suited. Literature available upon request.

WHITTINGTON PUMP & ENGR. CO., Dept. CP, 245 S. Meridian St., Indianapolis, Ind.

When inquiring specify CP A4270 — see handy form pages 2-3

★

Chart Shows Properties of Phenolic Plastics

An illustrated booklet titled — the "Plastic Primer" is primarily designed for laymen to provide some basic information about plastics. Perhaps its outstanding feature is the concise chart which points out the physical and chemical properties of a representative group of the company's phenolic molding materials. Included are two pages devoted to the uses of resins. In a brief reference to Durez oil soluble resins it is pointed out that as they are readily dispersible in drying oils, they are used to produce varnishes and enamels. Their characteristics make them valuable in the production of brushing and spraying finishes. They are also used in printing inks and emulsion "no-rub" waxes.

DUREZ PLASTICS & CHEMICALS, INC., Dept. CP, North Tonawanda, N. Y.

When inquiring specify CP A4271 — see handy form pages 2-3



Conveying pulverized materials | Filling Line in oil refinery | Operating an Asphalt Dryer | On a Glass Polishing Machine



Warming Mill in tire plant | Storage battery Pasting Machine | Mixers—pharmaceuticals plant | Portland cement Rotary Kiln

Trustworthy Drives for the Process Industries

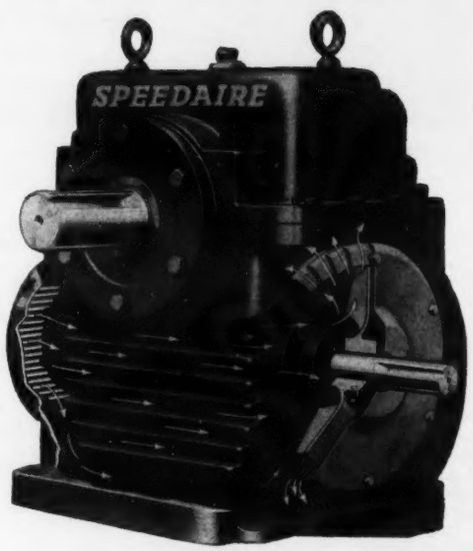
YOU insure correct Drives—plus years of trouble-free operation—when you install trustworthy Clevelands on your Process Equipment, because:—

- Cleveland has the **selection.** Eight standard types, including the new Speedaire Fan-Cooled Unit—a full range of sizes and ratios.
- Cleveland has the **experience.** Over 33 years building Worm Gearing *exclusively.*
- Cleveland has the **installations.** Thousands of successful applications on Conveyors, Mixers, Grinders, Dryers, and other Process Plant Equipment.

Write "Cleveland" into your specifications on all forward programs calling for Worm Gear Reducers. A District Representative near you is familiar with conditions under which equipment must operate throughout the Process Industries and can supply valuable suggestions on the selection of the most suitable Drives.

Please write or wire The Cleveland Worm & Gear Company, 3257 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication
In Canada: Peacock Brothers Limited



Double the Horsepower with the New Cleveland

SPEEDAIRE

Fan-Cooled Worm Gear Unit

CLEVELAND WORM & GEAR Speed Reducers

When inquiring specify CP A4272 . . . see information request blank, pgs. 2-3



When inquiring specify CP A4273 — see handy form pages 2-3

PRODUCTION

All-Purpose Inclined; Horizontal Portable Conveyor

For piling, carrying bags, boxes, cartons; loading cars, trucks, etc.



Portable conveyor speeds loading of bags into freight cars.

Uses — This all-purpose inclined, declined or horizontal portable belt conveyor is now being used for a wide range of services in carrying bags, boxes, crates, cartons and other loads; in loading freight cars, trucks and in many shipping and handling operations. As a horizontal conveyor it can be used as an individual unit to reach from one fixed position to another; also as a connecting link between other conveyors, or as a feeder conveyor. Any number of these units can be placed so as to form a continuous line to reach remote areas such as storage spaces, etc.

Features — These units are instantly adjustable for either piling or horizontal carrying. No tools whatever are



★ Here is an exciting new kind of label. It adheres firmly to any smooth surface—metal, plastic, glass, wood, painted or varnished. Won't dry out and fall off—yet like magic is easily peeled off in one piece without leaving a trace! ★ At last you can place instructions, warnings, tradenames, describe finishes, point out features, directly on the product at the very place such data should be carried. ★ When these Kum-Kleen stickers have served their purpose, they may be peeled off without scraping or tearing—a feature your customers will appreciate. ★ They are quickly applied without moistening—are available in any size, shape or color, printed to your specifications. ★ These are the same famous stickers so widely used in war and peace time production to carry instruction, rejection and inspection data.

Send for sample and complete information Address Dept. CP-3

AVERY ADHESIVES, 451 E. Third St., Los Angeles 13 · New York, Boston, Detroit, Chicago, Pittsburgh, San Francisco, Atlanta, Kansas City, Mo. In Canada, Enterprise Sales, Toronto

AVERY **Kum-Kleen** STICKERS

When inquiring specify CP A4275 — see handy form pages 2-3

Unique Plate-Type HEAT EXCHANGER

FOR PICKLING, ETCHING, PLATING, CLEANING

MADE OF KARBATE BRAND

DEVELOPED by National Carbon Company, Inc., and thoroughly proved in the field, the "Karbate" Plate-Type Heat Exchanger combines chemical inertness with high heat transfer and resistance to thermal and mechanical shock.

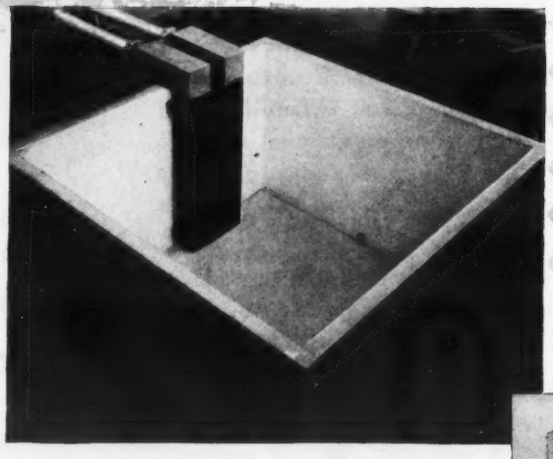
Thus, this unique heat exchanger is not affected by hydrochloric, dilute sulphuric, mixtures of nitric and hydrofluoric acids, or by chlorinated organic compounds. This... plus its unusual strength and sturdiness... makes the "Karbate" Heat Exchanger ideal for almost all heating and cooling operations.

This heater is especially valuable in pickling, etching, plating, or cleaning—where a heat exchanger must often take rough treatment. Still another advantage in plating and pickling is that it prevents dilution of the solution.

Simple in design and construction, the plates, or blocks, have tubular channels for flow of heating or cooling liquid. The outer surface is corrugated for utmost heat transfer. The units are light in weight, compact, easily installed, and available in various sizes. They may also be used in multiple, providing the desired capacity.

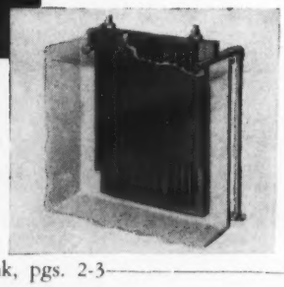
For more details, write for Catalog Section M-8804.





IMPERVIOUS GRAPHITE, IT IS CORROSION-RESISTANT AND PROVIDES HIGH HEAT TRANSFER

The "Karbate" Plate-Type Heater installed in a pickling tank, and a cut-away drawing of its construction.



The words "National" and "Karbate" are registered trade-marks of

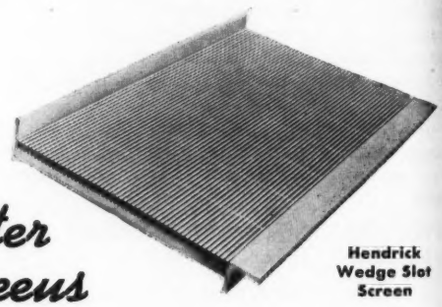
NATIONAL CARBON COMPANY, INC.

Unit of Union Carbide and Carbon Corporation

UCC

General Offices: 30 E. 42nd St., New York 17, N. Y.

Division Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco



Hendrick Wedge Slot Screen

Better Screens for better chemical Processing!

Hendrick manufactures perforated metal screens for many chemical processing and industrial operations. An extensive stock of dies, combined with 70 years of experience in perforating plate metals to exacting specifications, is your assurance of long and satisfactory service life. Hendrick screens are punched accurately in any size or shape of opening, flat or curved to any diameter, in all commercially rolled metals. Write today for your copy of "Perforated Metals."

Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring,
"Shur-Site" Treads and
Amorgrids.

HENDRICK
Manufacturing Company
32 DUNDAFF ST., CARBONDALE, PA.
Sales Offices in Principal Cities

When inquiring specify CP A4276 — see handy form pages 2-3

When inquiring specify CP A4274 . . . see information request blank, pgs. 2-3

needed. Ingenious mounting provides for any adjustment of the carrier frame between 20" and 42" above the floor. In using several handibelts to form a continuous line, one end may be raised above the next section to provide for transfer of bagged commodities at angles up to 90 degrees. When the drive end is adjusted to its lowest position of 10" above the floor, the high end can be raised from 3'-0" to 6'-3".

Description — Overall length — 11'-0"; overall width 27"; belting 14" wide, 3 ply 1/16" rough top; width of belt 19"; approximate speed 15" per minute reversible; approximate weight 450 lbs.; handles bags up to 150 lbs. are carried or continuous loads of 20 lbs. per square foot. Bulletin on Standard "Handibelt" conveyors on request.

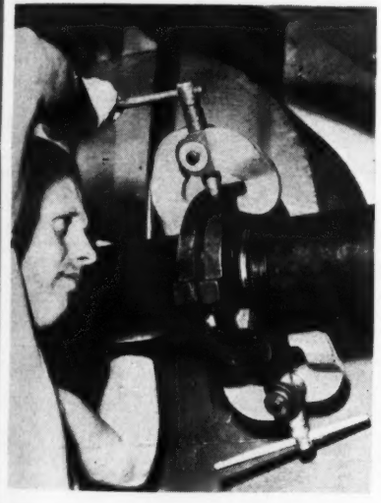
STANDARD CONVEYOR CO., North St. Paul 9, Minn.

When inquiring specify CP A4277 — see handy form pages 2-3

★

New Tool Simplifies Replacing Gaskets in Flanged Pipe Lines

Capable of opening joints against a load of 15 tons without damage to flanges



Flange-Jacks open all 2"-20" flanges; hold them in alignment

Uses — This tool opens pipe flanges for gasket renewal, quickly, easily, safely.

Features — With these Flange-Jacks, pipe flanges may be opened or closed without damage to flange faces, and without danger from sparks. Danger from chips and flying wedges is also eliminated. This new tool operates with a minimum of labor, an advantage when working in tight, cramped locations.

Description — Flange-Jacks are capable of opening joints against a load of 15 tons without damage to the flanges. As pressure is exerted, flanges open evenly without shock and bolt holes are maintained in continuous alignment. Closures are accomplished in a similar manner. Tremendous pressure is exerted smoothly and evenly, eliminating vibration along the pipeline and the possibility of causing new leaks in nearby joints. These tools are simple in design; jaws are heavy, one-piece steel forgings; screw points are case hardened. Standard size Flange-Jacks open all 2" to 20" flanges and hold them in perfect alignment. Additional information concerning Flange-Jacks is available on request.

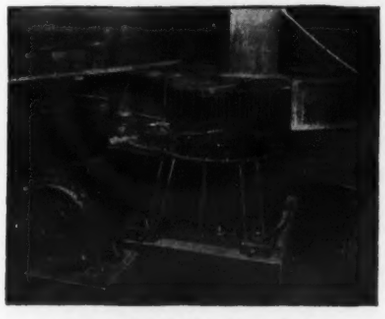
T. G. PERSSON CO., Dept. CP, 224 Glenwood Ave., Bloomfield, N. J.

When inquiring specify CP A4278 — see handy form pages 2-3



THESE machines fill a long felt need for double reduction units of the fully enclosed type to be used for agitators, mixers, ore roasters, bending rolls, etc., requiring a vertical shaft drive. Built in standard ratios in various types of assemblies ranging from 40 to 1 to 250 to 1 for all common motor speeds and a wide range of horsepower ratings.

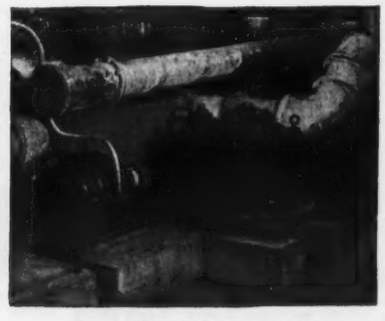
Jones Bulletin No. 75 covers complete details on these Worm-Helical Speed Reducers, with rating tables, dimension diagrams, torque charts and other application information. We shall be pleased to send you a copy.



● Jones Worm-Helical Speed Reducer on ore roaster with section of dust guard removed to show final gear reduction.



● Jones Worm-Helical Speed Reducer driving a lacquer agitator. A simple design prevents leakage of oil along the vertical low speed shaft.

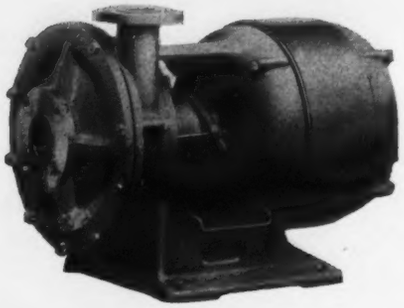


● Jones Worm-Helical Speed Reducer on a paper mill agitator drive.

W. A. JONES FOUNDRY & MACHINE CO., 4455 Roosevelt Road, Chicago 24, Illinois

When inquiring specify CP A4279 . . . see information request blank, pgs. 2-3

OLIVITE



Saves You Money
PUMPING CHEMICALS

It saves because it is durable.

a . . . all contact parts are of OLIVITE or OLIVEX, both exceptionally resistant to most hot or cold acids and other chemicals.

b . . . the shaft is protected by special sleeve.

c . . . the floating stuffing box and spring tension gland make the packing do its work properly.

The Olivite saves, too, because it combines durability with exceptional hydraulic capacity. The record shows many "trial orders" followed by orders for sometimes scores of units. Numerous plants have over 100 Olivites.

Would you care to have us send you literature on the OLIVITE ACID-HANDLING PUMP? Write or phone for Bulletin 308. At the same time, tell us about your acid or chemical-handling problem.

We also manufacture the O.D.S. Slurry and Sludge Pump. Write for Bulletin 309.

OLIVER UNITED FILTERS INC.

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3-OUF-4

When inquiring specify CP A4280 — see handy form pages 2-3

PRODUCTION

5" Knuckle Radius on Spun Heads

Stainless steel storage tank heads are stronger, more easily cleaned and pleasing in appearance



Heads have 5" knuckle radius

Uses — These stainless steel tanks are for milk storage and are described as the first ever built with both their inner and outer deep-dished heads spun with a 5" knuckle radius. (The knuckle radius is the curve of the head at the point where it is joined to the shells and ground smooth and polished to match the lustrous finish of the metal itself.)

Features — These gracefully rounded heads are stronger, easy to clean and present a pleasing appearance. Further refinements incorporated in these tanks include smoothly rounded corners where fittings meet the inside walls of the vessel.

Description — This maker's tanks with stainless steel spun heads up to 90½ inches in diameter have now been in service for many months. These 7½ foot heads are amnng the largest spinnings ever produced anywhere in the world. Complete information concerning tanks with stainless spun steel heads will be sent on request.

THE HEIL CO., Dept. CP, 3000 West Montana St., Milwaukee, Wis.

When inquiring specify CP A4281 — see handy form pages 2-3

Central Coolant System

Used as tank or to serve 1 - 7 spindles



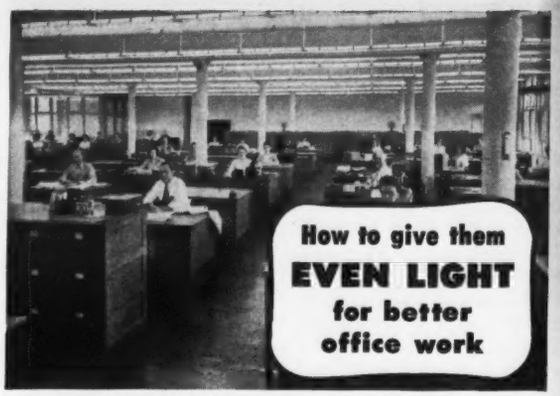
Portable Coolant System

Uses — This new, portable central coolant system is suitable for use as an auxiliary tank or as a central system for from one to seven spindles.

Description — This portable unit identified as Model 127 utilizes the maker's inter-knit fabric and wire strainer to keep coolant and cutting fluids clean. A high pressure centrifugal pump is mounted on the system's five gallon tank and provides an adjustable flow from a trickle to a steady stream. The Model 127 is equipped with "Stay-Put" flexible tubing and discharge nozzle. The sixty cycle one twenty-fifth horsepower motor is single phase, 115 volts, 1.60 amperes. Complete information on these central coolant systems and their application to specific service requirements is available upon request.

STRAINER PRODUCTS CORP., Dept. CP, 75 N. Willow St., Montclair, N. J.

When inquiring specify CP A4282 — see handy form pages 2-3



Consult Wakefield! In this clerical department, lighting was "spotty", inadequate for good work. Hence the company wanted more light and more uniform lighting—to increase efficiency, reduce eye-strain. Wakefield GRENADIERS (No. PG2488) in continuous rows 7 feet apart did the trick. They put plenty of light *down* on desks, and their translucent plastic sides light walls and ceilings, for greater eye comfort, better working conditions. Your lighting problem may need different treatment, but Wakefield can supply the answer! Write the F. W. Wakefield Brass Company, Vermilion, Ohio.

Get the light you pay for—keep fixtures clean!



When inquiring specify CP A4283 — see handy form pages 2-3

PNEUMIX . . . A GOOD MIXER



PNEUMIX IS SAFE . . . The sparkless, explosion-proof air motor won't stall or burn out. Factory Mutual Laboratories approve it for use with all inflammable materials.

PNEUMIX controlled agitation results in homogeneous batches no matter what changes in viscosity occur during processing.

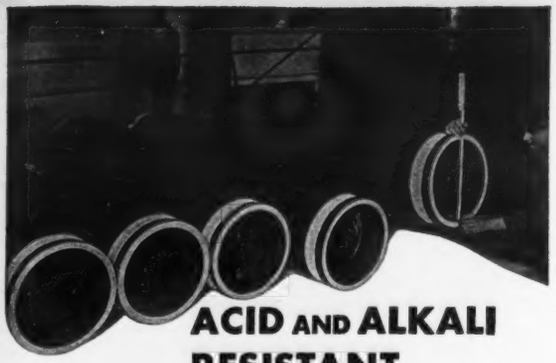
PNEUMIX Air-Motored Agitator is an asset in any company. Write for complete details today.

ECLIPSE AIR BRUSH COMPANY
393 Park Ave. • Newark 7, N. J.



ECLIPSE

When inquiring specify CP A4284 — see handy form pages 2-3



ACID AND ALKALI RESISTANT

HAVEG is a molded plastic, which is completely resistant to most acids or alkalies. Its chemical resistance is uniform throughout its entire mass. It is not a lining or coating.

HAVEG Chemical Equipment is made in standard tanks, pipe, towers, fittings, valves, fume duct and related items, also a variety of special equipment.

Send for Bulletin F3 which gives complete design, engineering and application data.

HT-43

HAVEG CORPORATION
NEWARK, DELAWARE
FACTORY—MARSHALLTON, DELAWARE



CLEVELAND 550 Leader Building · CHICAGO 1201 Palmolive Building · DETROIT 2832 E. Grand Blvd · LOS ANGELES 601 W. Fifth St.

When inquiring specify CP A4285 — see handy form pages 2-3

HERE'S HELPFUL DATA on BETTER EQUIPMENT for Vacuum Pumping Air or Gas Compression Handling Liquids



For high vacuum with maximum mechanial efficiency and quiet, slow speed, long service on distillation, evaporation, drying, concentration, exhausting, packing, impregnation and other processes.

For constant high pressure air in any mixing, atomizing, fuel burning or processing operations. For constant gas supply in operating gas furnaces, dryers and heating appliances, etc.

For handling chemicals and other process materials, thick fluids, semi-liquids and pastes, viscous materials, tar, solvents and corrosive materials.

BEACH-RUSS COMPANY
46 CHURCH ST. • NEW YORK 7, N. Y.

When inquiring specify CP A4286 — see handy form pages 2-3

PRODUCTION

Industrial Pressure Switches

Series M for compressors, pumps; diaphragm pressure switch sensitivity 1/100 inch of water on stationary applications

Uses — These three eight ounce switches are for either pressure or vacuum up to 200 pounds in the control of liquids or gases that will not corrode brass. Typical applications are in controlling compressors, pumps, carbonated beverage equipment.

Description — The three designs in which switch is offered are rated at 10 amp. on 110 volt AC. Type M — 500 has an externally adjustable range with a fixed differential. Type M — 600 can be reset manually from the outside. Type M — 700 has an adjustable differential. Contact arrangement in the first two can be specified as normally-closed, normally open, or double-throw. The third design is available only with normally open contacts. Pressure connection is by means of a ⅛ inch pipe nipple.

Uses — Originally designed to automatically control the intercooler flap on fighter planes, this exceptionally sensitive diaphragm pressure switch is now available for other applications.

Description — Show a sensitivity of 1/100 of an inch of water on stationary applications. The instrument may be adjusted by means of two knobs to any pressure value desired. For accurately determining these pressures, a draft gauge may be connected in parallel with the pressure switch.

AEROTEC CO., Dept. CP, White Plains, N. Y.

When inquiring specify CP A4287 — see handy form pages 2-3

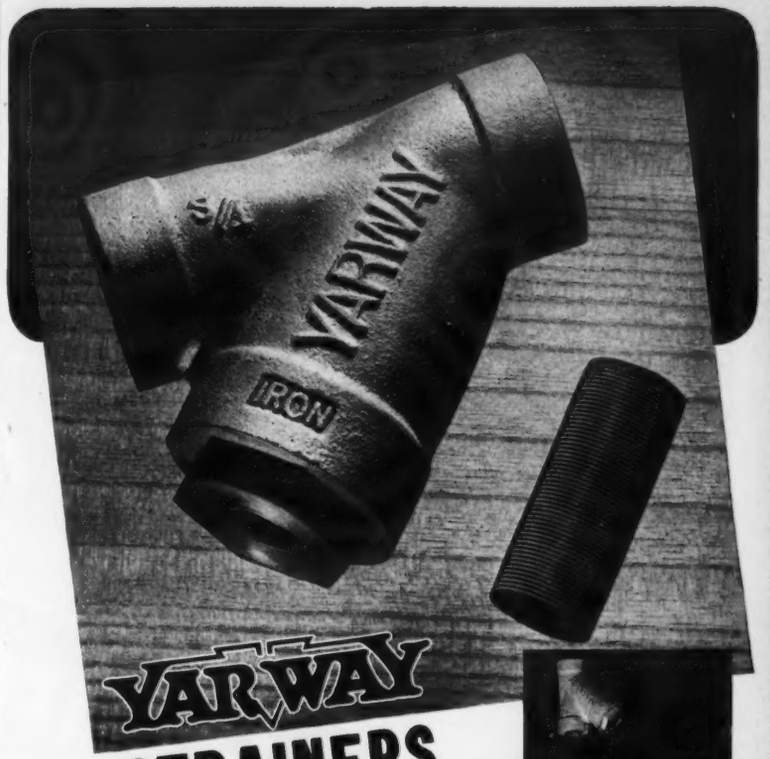
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Technical Book Catalog

A new catalog of technical books has just been issued. It includes the latest books on chemistry, physics, science, technology, medicine, foods, formularies, drugs and cosmetics, engineering, metals, technical dictionaries, building construction, etc. This catalog, conforming with the requests of technical and scientific workers and librarians, gives the date of publication of each book as well as price, number of pages, detailed descriptions and full table of contents. A copy of this catalog will be sent free to everyone who is interested in keeping up with the latest technical and scientific progress.

CHEMICAL PUBLISHING CO., INC., Dept. CP, 26 Court St., Brooklyn, N. Y.

When inquiring specify CP A4288 — see handy form pages 2-3



YARWAY STRAINERS "Police the Pipelines"



YARWAY STRAINERS are *selling by the thousands* because they are better engineered for the service.

***"The Screen is the Thing"*—a high-grade, woven Monel wire screen that stops the dirt, lets fluids flow freely.**

Then, too, purchasers like the *body finish—Cadmium plated* for protection against corrosion and for better appearance.

And last but not least, it is *"Easy to Clean"* having a steel blow-off bushing, precision machined with straight thread. Screen and bushing come out together—go back together, automatically aligning.

Six sizes, ½" to 2" for pressures up to 600 lb serve practically all strainer needs.

Sold by over 100 Mill Supply Houses. See your Supply House or write for Bulletin S-200.

YARNALL-WARING COMPANY
125 Mermaid Avenue PHILADELPHIA 18, PA.

YARWAY STRAINERS

When inquiring specify CP A4289 — see handy form pages 2-3

MOTORIZED

Only 12¢ per day for power

HydroLectric



12c per day for power means more — *much more* — than merely low operating cost. It is a monument to the engineering skill, design, construction and experience that have made lift trucks created and built by the Stuebing Brothers of Cincinnati the pace makers of the industry. It symbolizes efficiency, features, superior workmanship and materials unmatched.

LABOR LIKES IT—

PATENTED

None of the straining — tugging — pushing — shoving — that makes horses out of men. All the operator does is guide the truck. Finger tip control — the touch of a button — starts and stops it. It reverses or goes forward with equal ease. Naturally one trucker hauls three to four times the tonnage and management uses "replaced" truckers on other work. A glutton for punishment — a fiend for work — safe — fast — easy to handle, this Motorized Hydrolectric could *revolutionize* your trucking if you'd give it a chance.

Write today for operational information and learn how to handle loads *all day long* for 12c or less for power.

LIFT TRUCKS INC. THE STUEBINGS CINCINNATI

LIFT TRUCKS

Incorporated

CINCINNATI 14, OHIO

When inquiring specify CP A4290 . . . see information request blank, pgs. 2-3

PRODUCTION

Wood and Rubber Industrial Mats

Contribute to sanitation; reduce fatigue

Uses — Contribute to sanitation and reduce fatigue. Used to advantage in various work areas. In many applications they are an aid greatly to safety.

Description — The complete assortment of matting now again available from this organization includes solid plastic friction matting and flexible hard wood link matting. These two have been manufactured throughout the war and will continue to be produced. Among the various other types referred to are: colored rubber link matting and counter-tred mattings; cross corrugated matting, stair treds and runners, sponge rubber matting, perforated corrugated matting, link-type tire fabric matting and others. Detailed information and literature on request.

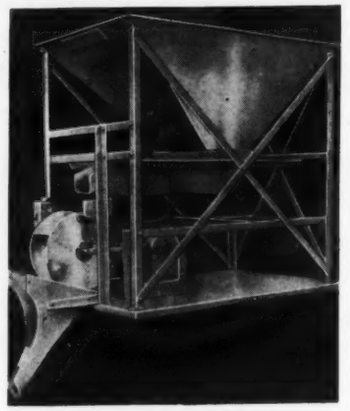
AMERICAN MAT CORP., Dept. CP, 1798 Adams St., Toledo 2, Ohio.

When inquiring specify CP A4291 — see handy form pages 2-3

★

Automatic Weighing Filling Unit

1-4 *ratio;* 18-20 *weighings per minute*



Weighing-filling unit with double shaker

Uses — For weighings and filling semi-free or non-free flowing materials of both food and industrial nature such as hardware items.

Features — The double-shaker feature of this Model A-DS weigher and filler enables it to handle difficult materials with high speed and accuracy. it offers continuous operation without trip level. Compact, space saving design.

Description — This machine is a bench or table model and consists of frame, hopper, two agitating shakers connected to motor drive, feed regulator plate, revolving weighing hopper with three compartments, weigh beam carried on floating bearings and having an adjustable discharge spout. The complete equipment also includes steel base, motor with eccentric ram and starting switch. Discharge spouts are interchangeable and made to suit size and shape of containers to be filled. This machine usually has a one to three weighing ratio, sometimes one to four. Speed is 18 to 20 weighings per minute. Approximate dimensions — 36" high, 22" wide, 45" long. Discharge spout generally extends about 8" below the base level. Hopper capacity 20 to 100 pounds. Motor is ¼ HP 110 v., AC standard. Eight different models of "Holm" weighing and filling machines are available. Additional information on request.

Either galvanized or stainless steel hopper, shakers and spouts are available.

MILLER WRAPPING & SEALING MACHINE CO., Dept. CP, 18 South Clinton St., Chicago, Ill.

When inquiring specify CP A4292 — see handy form pages 2-3

Jacketed Pipe and Fittings



Jacketed 90° Elbow

FOR MAINTAINING UNIFORM TEMPERATURE (HOT OR COLD) IN PROCESS PIPES

Wherever processing operations require the maintenance of uniform temperature (hot or cold) in the process pipes, a Hetherington & Berner Jacketed Pipe System will meet every requirement of accurate, economical processing. Heating medium may be either hot oil for high temperatures, steam for medium temperatures, or hot water for low temperatures. Cold water for cooling.



Jacketed 3-way Plug Cock. Note threaded plug adjustment, with lock nut.

At right: Jump-over pipes prevent heating (or cooling) medium from entering process pipe in transferring it from jacketed line to fittings, or from fitting to fitting.

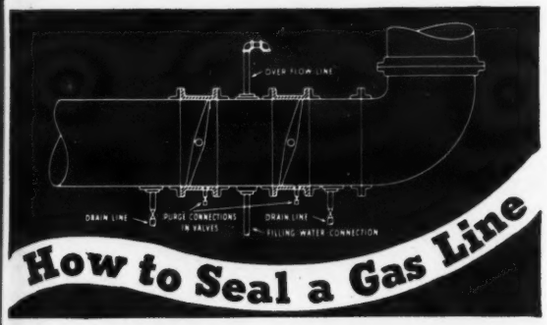


Write for Bulletin S-44

H&B HETHERINGTON & BERNER INC.

711 KENTUCKY AVE., • INDIANAPOLIS 7, INDIANA

When inquiring specify CP A4293 — see handy form pages 2-3



How to Seal a Gas Line

The sealing of gas lines is now required in many plants and it is advantageous to adapt the method sketched above because of its efficiency, low cost and the fact that it requires minimum space in the line.

When the gas is to be shut off, the two R-S Butterfly Valves are closed and the space between filled with water or other material, thus forming a tight seal. The purpose of the purge connections is to flush sediment from the shaft and vane before the valves are operated.

Since the center of the line illustrated in the sketch is 16 feet above the floor level, the valves are chain wheel operated. (Only four to six revolutions of chain wheel are required for complete opening or closure.)

VALVE DIVISION

R-S PRODUCTS CORPORATION

4531 Germantown Ave. • Philadelphia 44, Pa.

R-S Streamlined BUTTERFLY VALVES

When inquiring specify CP A4294 — see handy form pages 2-3

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HYDROSEAL PUMPS

Capacities from 10 GPM to 7000 GPM. Belt Driven, Direct Connected Motor Driven and Overhead Motor Driven Types.

HYDROSEAL PRINCIPLE

Clear water follows path of arrows at a pressure higher than the pump discharge, entirely filling the annular clearance between impeller and pump side plates. Abrasive solution cannot enter this clearance, thus high efficiency is developed and maintained.



Abrasives Materials Pumped With 1/3 to 1/2 Less Power

Thousands of Hydroseal Pumps are now operating under what seems to be every conceivable pumping condition. Hydrosealing saves power, while Maximix Rubber Pumping Parts outlast equivalent metal parts, 4 to 6 times or more. This means economy under the most difficult conditions. Maximix Parts are easily replaced in the field, without vulcanizing. Send for Bulletin 140. ***The Allen-Sherman-Hoff Co., 1433 Locust St., Phila. 2, Pa. Representatives in Most Principal Cities.***

When inquiring specify CP A4295 — see handy form pages 2-3



Gangway for peacetime output!

Farval insures positive lubrication of all Process Equipment bearings—at all times

Farval Centralized Systems eliminate hand oiling—because Farval automatically lubricates your machines while they are in operation.

You can put your finger on the places where Farval Systems knock out the wastes that run up costs. Farval creates net savings that will help to give you a profit margin—even with ceiling prices.

Send for your nearby Farval Representative today.

The Farval Corporation, 3257 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing

In Canada: PEACOCK BROTHERS, LIMITED

FARVAL

CENTRALIZED SYSTEMS OF LUBRICATION

When inquiring specify CP A4296 — see handy form pages 2-3



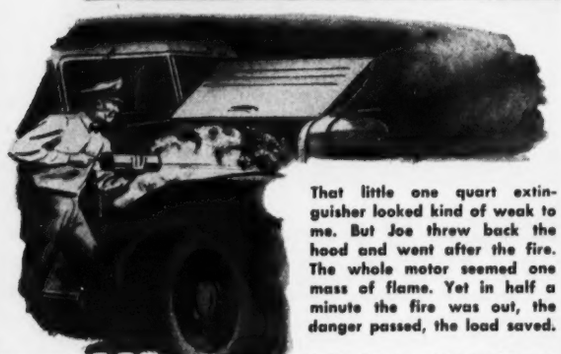
It was a rush job. They needed an emergency delivery of high octane aviation gas at Municipal Airport. Caught short, they asked us to bring it in from Hartsville, 200 miles away. We had to roll that night . . .



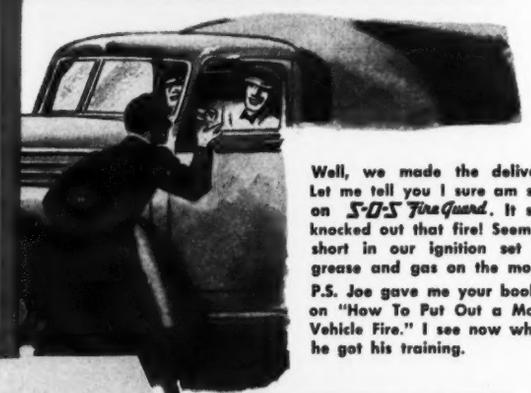
We got off to a good start. My side-kick Joe and I were old hands. It was pretty much routine to us. Then, about 60 miles out, Joe smelled smoke. Suddenly flames licked out from under the hood . . .



It looked bad. Riding behind us was 3000 gallons of liquid dynamite that could be plenty of trouble! I pulled to the side of the road. Joe reached over, snapped off the ignition, grabbed the S-O-S FireGuard and leaped out.



That little one quart extinguisher looked kind of weak to me. But Joe threw back the hood and went after the fire. The whole motor seemed one mass of flame. Yet in half a minute the fire was out, the danger passed, the load saved.



Well, we made the delivery. Let me tell you I sure am sold on S-O-S FireGuard. It sure knocked out that fire! Seems a short in our ignition set off grease and gas on the motor.

P.S. Joe gave me your booklet on "How To Put Out a Motor Vehicle Fire." I see now where he got his training.



1 Qt.

General's S-O-S FireGuard is Underwriters' Approved for electrical, chemical, gasoline, and oil fires. One quart size for car, truck, plane, boat, factory and home use. Write for your free copy of "How To Put Out a Motor Vehicle Fire" and *remember you need fire extinguishers in your home and automobile.*

Send us your own most interesting fire experience. A $25.00 prize each month for the best.

THE GENERAL DETROIT CORP.

2270 E. JEFFERSON AVE., DETROIT 7, MICH.

Distributors in principal cities

CHICAGO DALLAS NEW YORK

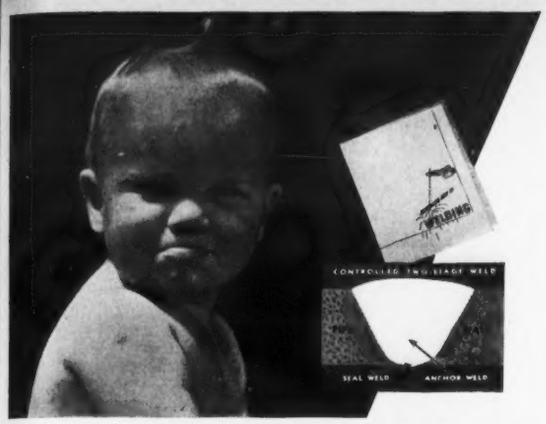
West Coast Affiliate: The General Pacific Corp.

IF IT'S GENERAL IT'S DEPENDABLE

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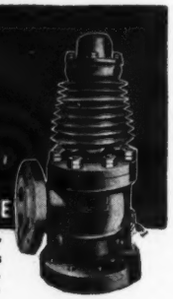
Inside of Butt Welded Joints* SMOOTH AS A BABY'S SKIN

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PRESSURE RELIEF UP TO 900 LBS. AT 1000° F
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FARRIS fin-cooled SAFETY RELIEF VALVE Type 2650. Sizes 1½" to 6". 900 lbs. 1000° F. Sizes to 2½"; full venturi port.

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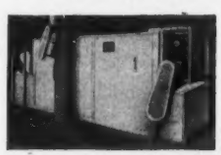
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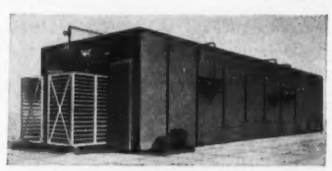
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This brake will develop a torque of 575 lbs. ft. or the equivalent of 100 HP at approximately 1000 RPM.

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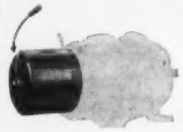
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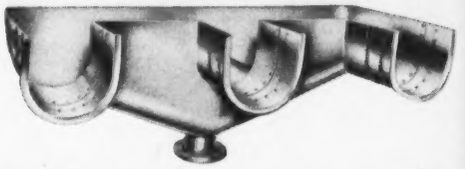
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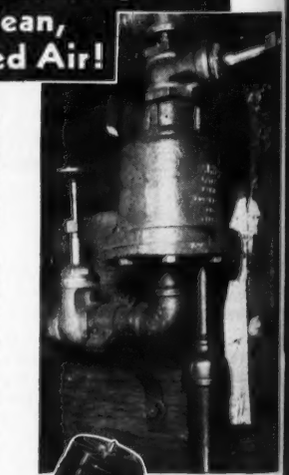
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The Aridifier not only removes moisture, oil and dirt from compressed air with maximum thoroughness, but it also operates with a very minimum of attention and maintenance.

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MARCH-APRIL, 1948

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Process Makes Honey Spread Like Butter Without Dripping

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Cartons Glued Together In Freight Car to Make Load That Moves As One Unit

The recently introduced method of glueing corrugated containers together on a pallet to make a non-shifting unit load (National Adhesives Co., New York, N. Y.) is now well known to shippers. An even newer development consists of glueing containers together right in the freight cars without the use of pallets. In this case a conveyor is run right into the box car and the last roller rotates right in a pan of glue, thus applying adhesive to the bottom of the container just before it is lifted and placed in the pile. The result is that the whole car load moves as a unit. Railroads are said to favor this method because of reduction in loss and damage to fragile shipments. (Summarized from address of J. D. Malcomsen-Robert Gair Co., New York 17, N. Y., at Packaging Institute Meeting — Nov. 1945.)

Cauassu Tree May Be New Source of Wax

Preliminary laboratory observations reveal wax producing possibilities in the Cauassu plant which is found in the Amazon River jungles in Brazil. There is a great need for wax — the carbon paper industry alone using an estimated fifteen to twenty million pounds. The Cauassu tree takes only one year to produce wax as compared to ten years for the Carnauba. It may possibly be cultivated on plantations which would be much simpler than jungle harvesting practices. (From report of expedition of Nelson Knaggs — Hilton-Davis Chemical Co. Div. — Sterling Drug, Inc., Cincinnati.)

Kites Protect Ships

Every American merchant ship is required to have at least one box kite on board and all U. S. Maritime Service cadets are required to learn how to operate them. The standard kite can lift a 15 gauge piano wire 2000 feet in the air to provide protection from air attack.

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